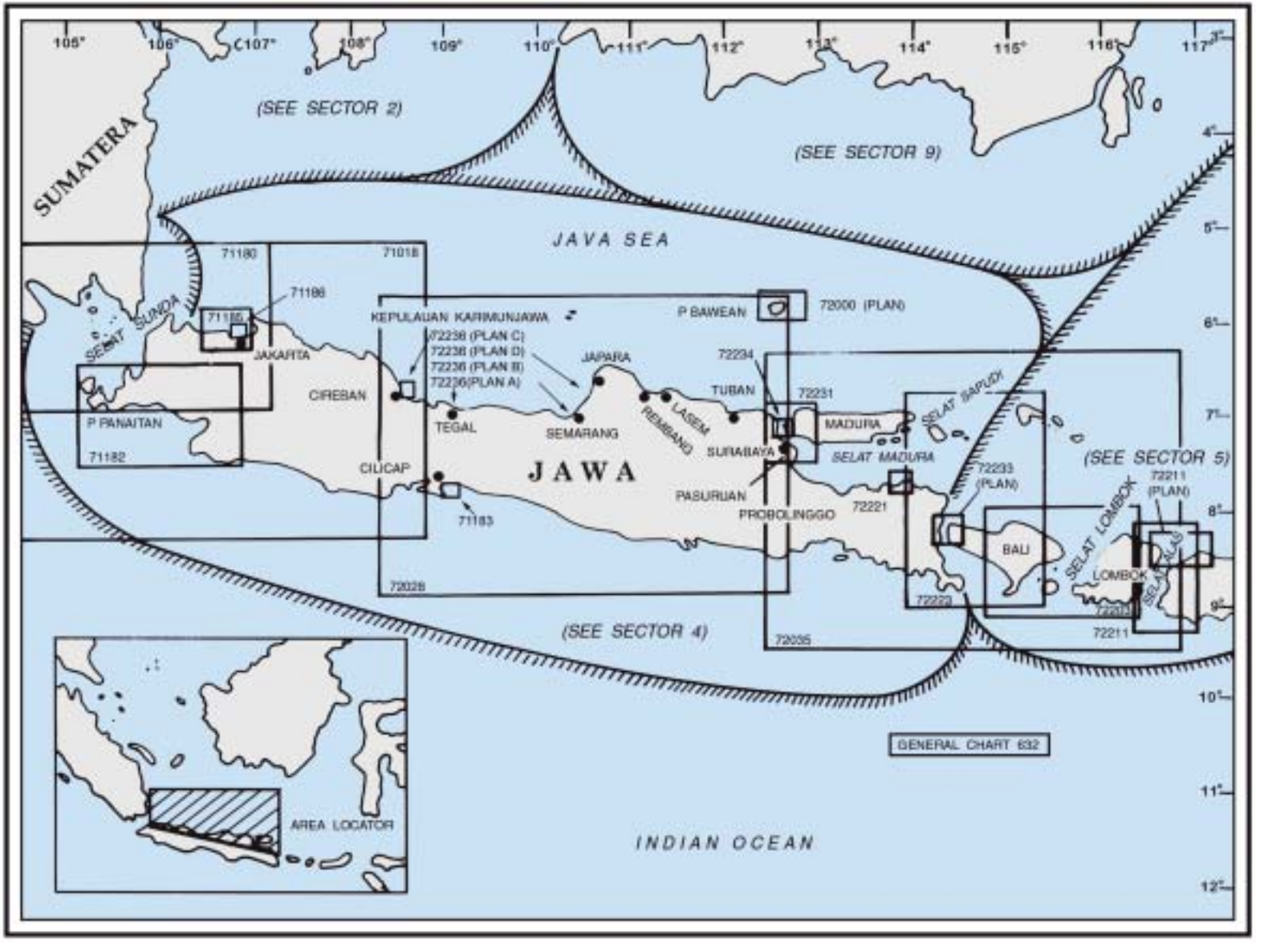
Click on "See Sector" to be hotlinked to that Sector.



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **3** — CHART INFORMATION

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SECTOR 3

JAWA—NORTH COAST AND MADURA

Plan.—This sector describes the N coast of Jawa from Tanjung Pontang to Tanjung Sedano, including the Java Sea and islands and dangers that lie N of Jawa. The descriptive sequence is from W to E.

General Remarks

3.1 The N coast of Jawa is low, marshy, thickly wooded, and generally devoid of landmarks. In places it is indented by bays which do not penetrate the island deeply.

The high mountains that lie inland are usually only visible in the monsoon but are occasionally seen for a few hours in the morning during the hazy atmosphere of the Southeast Monsoon.

As all the rivers on the N coast of Jawa flow into the sea between points of land, bringing down a considerable amount of debris with them, both the land and coastal banks may be extending seaward at these places; such points, therefore should never be rounded by bearing and distances, but by sounding, keeping in depths of over 11m.

Winds—Weather.—In the W part of the Java Sea, during the months April to November, the Southeast Monsoon will blow from ESE, in the center part it will blow E, and over the E portion it will blow ESE to SE. In the Java Sea, the Northwest Monsoon, blowing from WNW to W, is stronger in force than the Southeast Monsoon and lasts from December to March.

In the sea, along the N coast of Java, between Selat Sunda and the meridian of 111˚E, during the Northwest Monsoon, the sea breeze adds strength to the wind and draws it into NW or N during the daytime, but the land wind is seldom felt. Both land and sea breezes occur during the Southeast Monsoon, but seldom extend more than 15 miles off the coast.

In the vicinity of Kepulanan Karimunjawa, the monsoon winds are more regular and stronger than those along the Java coast.

Between the monsoons, calms are common, with occasional squalls associated with thunderstorms, especially in March and April.

Tides—Currents.—The horizontal movement of water in the Java Sea N of Java is mainly caused by the wind, and is, therefore, monsoon current; the maximum rate seldom exceeds 2 knots. A weak current setting constantly SSW has been noticed. Along the N coast of Java, the monsoon current sets W from May to October, inclusively; December is the month of transition.

In January and February, the current set E. At the end of March and in the first part of April the transitional period occurs again. Land and sea breezes influence the direction. The tidal currents were not observed to have any effect on the monsoon currents, except perhaps close offshore. Only the currents produced by the monsoon are felt at the various roadsteads. The current set with some force around the salient points and in general follows the contour of the coast.

The E current in and around Kepulaun Karimunjawa during January and February is stronger on the average than the W current in July and August.

Restricted areas.—Numerous oil fields have been discovered and established within 50 miles N of Selat Sunda and 35 miles E of the coast of Sumatera. The oil fields lying on the main shipping routes between Selat Sunda and Singapore are being rapidly extended.

Numerous structures, not all of these are charted, exist in these areas. The locations of features, markings, and established oil terminals are made known as the information becomes available.

Restricted areas have been established surrounding these oil fields. Vessels are prohibited from approaching or anchoring within 500m of any platform or submerged feature. A vessel entering a restricted area may be challenged by Indonesian air and sea patrols operating in this part of the Jawa Sea.

A conservation area is established among Pulau-pulau Seribu. Entry is controlled in the vicinity of **Ranget** (5˚28.3'S., 106˚28.6'E.), **Pancalirang Kecil** (5˚27.6'S., 106˚33.2'E.), **Bira** (5˚36.7'S., 106˚34.6'E.), and **Pulau Sangiang** (5˚58'S., 105˚51'E.).

Facilities, including air communication in support of tourism, were being developed.

Submarine exercises.—Surface vessels exercising with submarines display a red flag at the masthead. All shipping should keep well clear of an exercising vessel.

If necessary, a slow approach should be made to such a vessel, until the vessel indicates that the submarine is clear from its vicinity.

Piracy.—It has been reported that attacks on vessels by armed thieves have occurred in the areas covered by this text. Masters of all vessels are advised to take all possible security measures.

Tanjung Pontang to Tanjung Krawang

3.2 **Tanjung Pontang** (5˚56'S., 106˚16'E.), a low, wooded point with high trees, is formed by the delta of a river that runs into the sea; the E side of this point appears to be extending N. An exposed wreck lies 0.75 mile N of Tanjung Pontang.

Between Tanjung Pontang and Tanjung Kait, 17 miles ESE, the coast recedes to form a shallow bay, with depths of less than 5m, mostly muddy bottom, extending 2.5 miles offshore in places. There are four villages on the shore of the bay; a river flows into the sea 7.5 miles W of Tanjung Kait. A prominent group of trees, visible 8 miles, stands close E to the mouth of the river. The position of these trees has not been accurately determined. Another group of trees is near the village, Mauk, about 3.5 miles SSW of Tanjung Kait.

Pulau Tunda (5˚49'S., 106˚17'E.) is a low, tree-covered island lying 7.5 miles N of Tanjung Pontang. A light is shown near the SE coast of the island. A wreck, covered by a depth of 7m, lies 3 miles S of the SE point of Pulau Tunda. A depth of

20.1m was reported about 1.3 miles SSW of Pulau Tunda Light.

Tanjung Kait (6˚01'S., 106˚32'E.) is a low point difficult to identify from W, but plainly discernible from E. A prominent tree, visible from all directions, stands 0.6 mile S of the point.

Karang Pulaulaki (Menschemtu Reef), a coastal bank, extends 3.5 miles from the point, and has depths of less than 2m at its N and E extremities. The reef breaks at times and has a least depth of 0.4m.

Pulau Laki, is a low wooded islet with high trees, 3 miles NNW of Tanjung Kait.

Tanjung Pasir (6˚01'S., 106˚41'E.), 8.5 miles E of Tanjung Kait, is low and difficult to identify from the uniformly low coast on either side. Coconut trees grow around the village of Tanjungpasir, which lies on the W side of the point.

Untungjawa Reef extends about 1.75 miles NNE from Tanjung Pasir. Near the outer extremity of the reef, which is steep-to, are two patches of hard sand and stones which usually break at high water.

3.3 Between Tanjung Pasir and Tanjung Krawang, about 20 miles ENE, the coast recedes to form a bay with a low and uniformly wooded shore. The country inland from the bay is hilly.

The depths increase gradually off the shore of this bay; in places the depths are less than 5.5m as far as 1 mile.

Bima Oil Field, consisting of a number of production platforms and other oil installations, is between 7 miles and 15 miles NNE of Tanjung Krawang.

Bima Marine Terminal (5˚45'S., 107˚05'E.) has been closed for commercial operations since 1992. Information for the port has been retained should it reopen. The port, which can accommodate tankers of up to 250,000 dwt, is in the NE part of Bima Oil Field.

The terminal consist of three SBMs, moored 1 mile apart in a NE direction, about 10 miles offshore. Depth of water in the approaches and at the SBMs is 33.5m.

Restricted area.—Bima Oil Field is protected by a restricted area about 7.5 miles long and 3.5 miles wide, which falls mostly within the extensive restricted area shown on the chart.

Unauthorized entry into the area is prohibited. Pipelines are within the restricted area. Lights are shown from the SBMs.

Pilotage.—Tankers will be boarded in the anchorage area by a Mooring Master. Tankers normally berth during daylight hours.

Unberthing may be carried out at any time. The vessel's ETA should be sent 72 hours, 48 hours, and 12 hours in advance.

Regulations.—The Indonesian flag is to be flown throughout a vessel's stay at the terminal. No radio transmissions are allowed within the terminal area.

Anchorage.—There is an anchorage area off the NE end of the restricted area; it is bound by the following positions:

a. 5˚43'00"S, 107˚06'00"E.
b. 5˚41'30"S, 107˚07'10"E.
c. 5˚42'50"S, 107˚08'37"E.
d. 5˚44'20"S, 107˚07'28"E.

Caution.—A dangerous wreck lies 4 miles WNW of the anchorage area.

3.4 Tanjung Krawang (5˚56'S., 107˚00'E.), the E entrance to the bay, is low and difficult to identify, unless locally acquainted. Trees growing in the flat tidelands NE of Tanjung Krawang are visible from distances up to 13 miles.

A lighted beacon stands about 2 miles NNE of Tanjung Krawang. A bank of mud encircling the point is extending seaward, and in general, the depths in the SE part of the bay, within a line joining Tanjung Krawang and Tanjungpriok, appear to be decreasing.

Near the head of this bay is the city of Jakarta. Tanjungpriok, about 5.5 miles E of Jakarta, is the port of that city.

Numerous fishing stakes and fish traps lie between Pulau Damar-besar and the shore E and SE. It has been reported that the traps are moved frequently and their charted positions are not indicative of their actual positions.

Western channels leading to Jakarta and Tanjungpriok are the Outer Channel and the Inner Channel. Vessels bound for Jakarta and Tanjungpriok from Selat Sunda usually pass S of Pulau Tunda, then by the preferred channel. The Inner Channel can only be used in daylight.

Nearly all the islands adjacent to the channels are low and flat, but can usually be seen by their thick vegetation; there is also some vegetation on the broad reefs that fringe the islands.

The many reef patches, which are on each side of the channels, are usually marked by discoloration when the depths are 5.5m or less. In general, the water in Inner Channel is not so clear as that in the Outer Channel.

3.5 Outer Channel.—Outer Channel trends E to pass S of Pulau Tunda, then between Kepulauan Ayer Besar and Kepulauan Tidung, and then generally SE to pass N of Pulau Damar-besar.

Kerbau Reef (5˚46'S., 106˚26'E.), with a depth of 3.4m, lies 9.75 miles ENE of Pulau Tunda light, but it is well N of the fairway through Outer Channel.

Kepulauan Ayer Besar (5˚48'S., 106˚31'E.), 12 miles N of Tanjung Kait consists of three islands. Pulau Tidung-besar and Pulau Tidung-kecil, the two W islands, rise from a long, narrow, partly drying coral reef.

A number of dangers, with depths of as little as 1.5m, lie between Pulau Tidung-besar, the W island, and Kerbau Reef, 2.5 miles WNW.

Pulau Payung Besar (5˚49'S., 106˚33'E.), the third island of Kepulauan Ayer Besar, lies 1.3 miles SE between the reefs which border the two islands.

Pulau Payung Lighthouse is a white metal framework tower, 15m high, standing near the SE end of the island. A conspicuous wooden jetty was reported to extend about 350m SSE from the SE point of the island. Pulau Payung Kecil lies on a detached reef 0.3 mile N of Pulau Payung Besar; there is a clear channel between the reefs bordering it and those bordering Pulau Tidung-kecil.

The coconut palms on Pulau Tidung-besar and Pulau Tidung-kecil can usually be seen from a distance of 10 miles.

Karang Besar (Struisvogel Klipper) (5˚53'S., 106˚28'E.) are a group of six small coral reefs which show discoloration, on the S side of Outer Channel, 8.5 miles NNW of Tanjung Kait; the extent of the rocks is about 1 mile in a N and S direction. The least depth over the reef is 3.4m.

Karang Laut, a steep-to reef, with a least depth of 5.8m, lies 2 miles E of Karang Besar; both of these dangers flank the N side of Inner Channel.

Kepulauan Tidung, a group of low, thickly wooded islands, rise from a steep-to reef marked by numerous drying patches, trees standing in the water, and discoloration at the edges.

The group is centered 3.5 miles SE of Pulau Payung Light, the deep intervening channel is about 2 miles wide between the reef fringing Pulau Payang and the reef from which Kepulauan Tidung rises.

Pulau Tikus is near the W extremity of the reef and Pulau Pari, the largest island in the group, lies near the E end of the group.

Karang Jong (5˚51'S., 106˚39'E.), a tiny islet of sand and coral rising from a steep-to reef patch, lies 1 mile E of Pulau Pari. The light on the islet is a green tower standing on piles. A 5.1m patch lies 1.3 miles NE of Pulau Jong.

Caution.—A dumping ground for ammunition exists off the S side of Kepulauan Tidung. Between this area and Pulau Rambut, 7 miles SE, lie numerous reefs. Vessels are cautioned to avoid this area.

3.6 Pulau Dapur (5˚56'S., 106˚43'E.), a low brush-covered islet, is about 6.5 miles SE of Pulau Jong, on the S side of Outer Channel. Gosong Dapur, a reef with a depth of less than 2m, lies 0.4 mile NE of Pulau Dapur, with another reef, having a depth of 2.7m, midway between.

A 10.7m patch of coral exists 0.35 mile NW of Gosong Dapur. A light is shown from a position close E of Pulau Dapur.

Palau Damar-Besar (5˚58'S., 106˚51'E.), 7 miles ESE of Pulau Dapur, is covered with tall trees; it lies on the W limit of a prohibited anchorage. A light is shown from a white metal tower, 50m high, standing near the W extremity of the island; a racon is situated with the light.

A steep-to reef, with a depth of less than 2m, and a drying sand bank on its S side, lies 0.5 mile N of Pulau Damar-besar.

A wreck, marked close NW by an isolated danger buoy, lies 2.3 miles E of Pulau Damar-besar.

Karang Susuh, a 16.2m coral patch, is 3.75 miles N of Pulau Damar-besar. A depth of 12.8m was reported 2.5 miles ENE of Karang Susuh and a depth of 9m was reported 3 miles ENE of the same reef.

Wanara (Damar-kecil), 1.5 miles S of Pulau Damar-besar, is wooded. Pulau Wanara (Damar-kecil) is 1.5 miles SSW of Pulau Damar-kecil.

Pulau Nirwana (Nyamuk-besar) 1.5 miles SSE of Pulau Nyamuk-kecil, is fringed by a reef. Fish traps extend up to 0.5 mile E and S of Pulau Nyamuk-besar. Amstel, a 3m patch, lies 0.2 mile ESE of Pulau Nyamuk-besar.

Directions for Outer Channel.—When approaching Tanjungpriok from W, pass S of Pulau Tunda, and proceed S of Pulau Payung, continuing E until clear of Kepulauan Tidung and Pulau Jong. Then alter course direct for Pulau Damar besar light, passing NE of Pulau Damar and adjacent reefs.

When near Pulau Damar besar, steer SE to pass between Pulau Damar kecil and Pulau Nyamuk kecil and then E of Pulau Nyamuk besar and Karang Timbul to the harbor. Numerous fish traps may be encountered S and E of Pulau Damar besar.

Caution.—When S of latitude 5˚55'S, a vessel is advised not to approach Tanjungpriok from E of longitude 106˚55'E, since numerous fish traps and settlement of huts are encountered up to 5 miles off the coast between Tanjung Krawang and Muara Bekasi, 7 miles to the south.

Numerous fish traps were reported in the approaches to the E entrance of the harbor extending N almost to the 20m depths.

Work was reported in progress to the E of the E entrance. The construction of a berth inside the harbor is for handling iron scrap.

3.7 Inner Channel.—This route from Selat Sunda to Jakarta leads between the coast of Jawa and the northern islands and reefs.

Karang Besar and Karang Laut, previously described in paragraph 3.5, are the two W dangers bordering the N side of Inner Channel.

Tongara (5˚55'S., 106˚32'E.) is a small steep-to reef, which has a depth of 5.5m, lying about 1.5 miles SE of Karang Laut. It is not always marked by discolored water.

Pejinab Reef, with a depth of 0.9m, is 5 miles NNE of Tanjung Kait and close W of the dangerous reef bordering Pulau Lancang.

Pulau Lancang (5˚56'S., 106˚35'E.) is formed by a group of three low, wooded islands, visible from 9 miles. The reef surrounding this group dries in places, and is marked with patches of vegetation. Some of the rocky heads are awash. The W edge of the reef, which has a depth of 0.3m, extends almost to Pejinab Reef.

Pulau Bokor, a low reef-fringed islet, lies 1.75 miles ESE of the SE island of Pulau Lancang. The high trees on the islet are visible from 12 miles.

Hordyk, with a least depth of 4m, and Lumbang, with a depth of 3m, are patches that lie 1.3 miles WSW and 0.75 mile SW, respectively, of Pulau Bokor. A patch with a depth of 5.2m, lies 0.2 mile NNE of Lumbang.

Pari, a patch with a depth of 7.6m, and Karang Tiga, a patch with a depth of 6.1m, lie 0.75 mile and 1 mile, respectively, S of Pulau Bokor. A patch, with a depth of 7.9m, lies 0.35 mile ESE of Pari.

Gosong Pulau Bokor, 2 miles ESE of Karang Tiga, has a depth of 3m.

A group of detached reefs lies between Gosong Pulau Bokor and Pulau Rambut, 1.75 miles E. Karang Ayer, with a depth of 4.9m, lies midway between the two.

Karang Ketapang, with a depth of 4.9m, lies 0.35 mile SSW of Karang Ayer and Sonko, a reef with a depth of 7m, lies 0.15 mile SSW. Wrange Rock, with a depth of 3m, lies 0.15 mile W of Pulau Rambut.

Pulau Rambut (5˚58'S., 106˚41'E.) lies 1.75 miles E of Gosong Pulau Bokor. Pulau Untungjawa, similar to Pulau Rambut, lies 0.5 mile E of that island. The remains of a sunken dock, which must be given a wide berth, lies off the S side of the island.

A conservation area is established around Pulau Rambut, as a rare species of bird is found there.

Cenkareng Oil Terminal (5˚58'S., 106˚44'E.) is situated about 1.5 miles ENE of Pulau Untungjawa. The terminal consists of an SPM which is connected, by a submarine

pipeline extending SE, to a position onshore 1.5 miles SE of Tanjung Pasir.

Vessels up to 36,500 dwt and 200m in length can be accommodated; the depth at the SPM is about 21m. Berthing is restricted to daylight hours only but unberthing may take place at any time.

Ayer-kecil, a wooded islet encircled by a wide drying reef, lies 3 miles E of Pulau Untungjawa. Ayer Sedang (Monnikendam Reef), a reef which has a patch of drying sand, lies 1 mile E of Ayer-kecil. A 3m patch lies 91m E of Ayer Sedang.

Ayer Reef, with a least depth of 1.5m, lies on the N side of Inner Channel, 0.75 mile SSW of Ayer Sedang.

Pulau Ayer-besar (6˚00'S., 106˚47'E.), a reef-fringed islet marked by tall trees, lies 1.5 miles SE of Ayer-kecil.

Pulau Ubi-kecil (6˚00'S., 106˚44'E.), a reef with a small cay, lies on the S side of the Inner Channel, 3 miles E of Tanjung Pasir. Pulau Ubi-besar, a wooded reef-fringed islet, lies 0.5 mile E of Pulau Ubi-kecil. Ubi, a reef with a depth of 2m, lies 0.3 mile E of Pulau Ubi-kecil. A number of other reefs lie S of Pulau Ubi-kecil and Ubi.

Karang Jalan, a reef with a least depth of 0.9m, lies 3 miles SE of Pulau Ubi-besar.

Other islets and dangers lie W of Karang Jalan and will be discussed with Jakarta Roadstead.

Directions for Inner Channel.—Mariners are advised that passage to Tanjungpriok from W by way of Inner Channel should be undertaken only during day and by those with local knowledge.

When approaching from W, steer to pass S of Pulau Tunda. When the E extremity of Pulau Tunda bears NNW, the prominent tree S of Tanjung Kait and Pulau Laki will be sighted at about the same time.

The prominent group of trees close SW of Tanjung Kait has occasionally been mistaken for Pulau Laki, and the trees on Pulau Laki have also been mistaken for Pulau Lancang; the latter island is generally sighted about the same time as Pulau Bokor.

After passing S of Pulau Tunda, steer to pass S of Karang Besar, then N of Pulau Laki and the N extremity of Menscheneter Reef and S of Pejinab Reef. Then the track is towards Pulau Rambut, keeping clear S of the shallow patches between Penjinab Reef and Gosong Pulau Bokor.

After passing the beacon on the S edge of Gosong Pulau Bokor, the channel leads through the narrow passage, marked by beacons, between the SW edge of the reef bordering Pulau Rambut and the outer extremity of Untungjawa Reef, extending N from Tanjung Pasir.

This narrow passage may be approached by passing between Karang Ayer and Karang Ketapang, or by passing S of Sonko. When past Pulau Untungjawa, course should be set to pass between Ayer kecil and Ubi, then SW of Ayer Reef, Pulau Ayer besar, and Pulau Nyamuk besar, then to the harbor entrance, passing E of Karang Timbul.

Approach to Jakarta and Tanjungpriok

3.8 From Tanjung Pasir to Tanjungpriok, 13 miles ESE, the coast is low, uniformly wooded and backed by mountains, far inland. The town of Jakarta stands 10 miles SE of Tanjung Pasir.

Karang Perut (6˚02'S., 106˚43'E.), a small stone reef with a depth of 3.9m, lies 2.75 miles ESE of Tanjung Pasir. Karang Pulau Kelor, a reef with a depth of 3.7m, lies 0.4 mile ESE of Karang Perut.

A 5.2m patch lies 0.15 mile N of Karang Pulau Kelor, and several shoals, with depths of less than 5m, lie between this reef and Pulau Kelor, a low, wooded islet 1 mile E.

Pulau Gipir (Pulau Cipir), 1 mile SE of Karang Perut, is surrounded by a reef on its N, E, and W sides. A pier, off which there are some mooring buoys, extends from the SW side of the island and a long barge pier extends from the NNW side toward Pulau Kapal. The disinfecting station is maintained on Pulau Gipir.

Pulau Kapal (6˚02'S., 106˚44'E.), a low wooded islet 0.2 mile NNW of Pulau Gipir (Cipir), has two piers off its S side with reported depths of 6.1 to 7.6m. The Quarantine Station is situated on Pulau Kapal.

Pulau Sakit, another low reef-fringed islet, lies less than 0.75 mile ESE of Pulau Kapal. A small detached reef, with a depth of 1.8m, lies 0.35 mile SE of Pulau Sakit.

Another shallow spot with a least depth of 2.7m lies about 0.3 mile W of Pulau Sakit. Karang Pulau Sakit, with a depth of 1.5m, lies 0.4 mile SSE of Pulau Sakit.

Karang Bangau (Reigersdaal Shoal) lies 1.3 miles S of Karang Pulau Sakit. This reef should not be approached within 91m.

Anchorage for the Quarantine Station or the Disinfecting Station is close SW of Pulau Gipir pier.

Prohibited area.—Anchoring and fishing are prohibited within an area extending between Pulau Kapal and the W mole of Jakarta Canal. Karang Bangau lies at its SW corner, and Karang Tahan, 3 miles E, at its NE corner.

Mariners are cautioned that the oil and gas pipelines, laid in the SE part of the prohibited area, extend beyond the area limits. The position of the pipelines may be seen on the chart.

An offshore oil terminal is situated about 0.5 mile W of Karang Tahan. A mooring buoy, available to tankers of up to 30,000 tons, is moored at the seaward end of a pipeline running N from the shore.

The terminal lighted buoy is moored about 0.3 mile NNW of the lighted terminal mooring buoy. Anchoring is prohibited in the vicinity of the terminal and the pipeline.

3.9 **Karang Tahan** (6˚04'S., 106˚48'E.), the westernmost danger in Jakarta Roadstead, is a reef with a depth of 4m, lying 3 miles NNW of Jakarta.

Karang Pasir, 1.5 miles ENE of Karang Tahan, is a drying reef. Karang Tenggelam, with a depth of 4.2m, lies 0.4 mile SW of Karang Pasir. Karang Pipa, with a depth of 3.8m, lies 0.2 mile SSW of Karang Tenggelam.

Karang Lamteri (Neerstuk), a drying reef, lies about 0.9 mile E of Karang Pipa.

Anchoring and fishing are prohibited in an area commencing on shore, at Jakarta and extending about 14 miles NNE. The limits of the area may best be seen on the chart.

Mariners are cautioned that gas pipelines are laid across and outside the prohibited anchorage area. The position can be best seen on the chart.

Two lighted buoys and a lighted beacon are situated near the pipelines.

Islands and Dangers North of Jakarta and Tanjungpriok

3.10 Pulau Jagautara (Jaga Utara) (Pulau Tuguan) (5˚12'S., 106˚28'E.), described in paragraph 4.5, may be said to mark the dividing point between the route leading W of Kepulauan Seribu toward Selat Sunda and the route leading E of that island group toward Jakarta and Tanjungpriok.

Beting Raja (5˚13'S., 106˚44'E.), about 17 miles E of Jaga Utara, is a steep-to coral patch, with a small drying bank of white coral sand. The light, a black and red framework tower 12m high from which a racon transmits, is practically the only means of recognizing the patch. The light has been reported to be a good radar target at a distance of 12 miles.

A 14.6m depth was reported to lie 9 miles WSW of Beting Raja. A dangerous wreck lies 0.5 mile SSW of Beting Raja.

Discolored water lies 11 miles NNE of Beting Raja. Beting Eka, 11.5 miles SE of Beting Raja, is a steep-to coral reef, with a depth of less than 1.8m. It was reported that shoal water existed within a radius of 3 miles of this reef. A white beacon, 10m high, is on Beting Eka.

Obstructions lie 8.5 miles ESE and 37 miles ENE of Beting Eka. Wrecks lie 0.5 mile S and 5.5 miles SSE of Beting Eka. Dangerous wrecks also lie 24 miles N, 36.5 miles NNE, and 32 miles NE of Beting Eka.

Kepulauan Seribu (5˚35'S., 106˚34'E.), about 80 in number, in addition to many reefs, rocks, and drying banks, are centered about 24 miles N of Tanjung Kait.

The islands, which are wooded, are not easily distinguished one from another. It is advisable not to attempt to pass through the group.

Winds are stronger amongst Kepulauan Seribu than along the Jawa coast, especially in the Southeast Monsoon and are then often strongest and least steady during the night. There are appreciable land and sea breezes from and towards Jawa.

The description given here is principally to point out conspicuous features of possible use as landmarks to vessels and to point out dangers that lie on the E side of Kepulauan Seribu.

Pancalirang Besar (Timur)(5˚27'S., 106˚34'E.), the N island of the main group of Kepulauan Seribu, lies 16.5 miles SSE of Jaga Utara. It is densely wooded with tall trees.

Pancalirang-kecil lies 0.75 mile SW of Pancalirang-besar. A patch of coral rocks extends 1.3 miles W of Pancalirang-kecil.

Pulau Jagung, 2.5 miles SW of Pancalirang-besar, is thickly wooded with high trees. Karang Mayang, a rocky patch with a depth of 7.9m, lies 2.5 miles SE of Pancalirang-besar.

Pulau Buton, 1 mile W of Pancalirang-besar, is 0.2 mile within the W end of this coral patch. A detached rock, with a depth of 2.4m, lies 1.75 miles W of Pulau Buton. Another rock, with a depth of 3m, lies 1 mile NNE of Pulau Buton.

Pulau Ringit, densely wooded, with high trees, lies 2 miles SSE of Pancalirang-besar. Kepulauan Serabu lies 1.5 miles SW of Pulau Ringit.

Pulau-pulau Petudang (5˚35'S., 106˚36'E.), densely wooded with high trees, lies 5 miles SSE of Pulau Ringit. Pulau-pulau Laga, covered with bushes and surrounded by an extensive reef, lies midway between.

Pulau Belanda, about 1.3 miles SSE of Pulau-pulau Petudang, is conspicuous by a group of causarina trees. Pulau Pemadaran, about 2 miles farther SW, is covered with low trees.

A lighted buoy (safe water) is moored 1.5 miles ENE of Pulau Pemadaran. A channel leads through the islands, marked by two sets of buoys.

Pulau Opak-kecil, about 2.75 miles S of Pulau Pemadaran, is reported to have two trees with fan-shaped tops.

Pulau Conkak and Simpit, islets 4.5 and 6 miles S, respectively, of Pulau Pemadaran, and near the S limit of Kepulauan Seribu, are not conspicuous, but the reefs surrounding them are noticeably colored and break with any sea.

Pulau Lang, nearly 7 miles SSE of Pulau Pemadaran, abounds with coconut trees. Sekati, 0.75 mile S of Pulau Lang, has a high conspicuous tree on its SW side. Pulau Karangbras, about 3 miles WSW of Pulau Lang, is covered with undergrowth. Ayer is about midway between these two islets.

Caution.—Submarines frequently exercise within the area bounded by the parallels 5˚34'S, 5˚49'S, and the meridians 106˚15'E, 106˚25'E, to the W of Kepulauan Seribu.

There are three sea conservation areas in the Seribu Islands. These areas, prohibited to all vessels, with the exception of naval, government, and local vessels, are bound as follows:

1. Area 1—bound by 5˚27'00"S, 5˚29'00"S and 106˚26'00"E, 106˚28'00"E.
2. Area 2—bound by 5˚26'30"S, 5˚29'00"S and 103˚32'00"E, 106˚35'00"E.
3. Area 3—bound by 5˚36'00"S, 5˚36'42"S and 106˚33'36"E, 106˚36'42"E.

3.11 Pulau Peniki (5˚42'S., 106˚43'E.) is an isolated tree covered island that lies about 7 miles E of the S part of Kepulauan Seribu. The island is visible from a distance of 14 miles. An obstruction lies 3.3 miles S of Pulau Peniki. A light is shown from a metal framework tower on the island.

Tohor Jantan (Nassau Reef) (5˚49'S., 106˚49'E.), with a depth of 3m, lies 9 miles SE of Pulau Peniki, and is near the route usually followed by vessels bound for Tanjungpriok from the vicinity of Jaffa Utara.

The discoloration marking Tohor Jantan can be seen from distances up to 0.5 mile. Three detached reefs, having a least depth of 12.5m, and four wrecks, exist within 6 miles W of Tohor Jantan.

The old harbor, N of Jakarta, is now a new fishing harbor, and named Muara Baru. There is a wharf 1,500m long with extensive cold storage facilities as well as a fish processing plant, where fishing vessels of up to 1,500 grt. berth alongside. At its NE corner, a yacht harbor is situated, 1 mile E of the canal.

Three submarine cables land at the SW section of the yacht harbor.

Karang Jawiel, 1.5 miles SSW of Tohor Jantan, has a depth of 6.7m.

Directions.—Vessels bound for Tanjungpriok from Selat Bangka should steer toward Jaga Utara, and after passing that

island, steer to pass E of Kepulauan Seribu and about 1 mile W of Pulau Peniki.

After passing Pulau Peniki steer direct for Pulau Damar-besar so as to pass well clear W of Tohor Jantan and Karang Jawiel. Deep-draft vessels should bear in mind the existence of the shoals, previously mentioned, that lie W of Tohor Jantan.

Should a vessel, however, be well E of Kepulauan Seribu, steer on a course to pass 10 miles E of Pulau Peniki. With Pulau Damar-kecil bearing 184°, clear 2.5 miles E of Tohor Jantan and Karang Jawiel.

At night, without local knowledge, it is recommended that a vessel should make for Beting Eka reef, giving a berth of at least 3 miles, then change course to pass E of Tohor Jantan and Karang Jawiel on a line of bearing to Pulau Damar-besar Light. This track will pass near Susuh and the obstruction about 1.3 miles NNE of Pulau Damar-besar.

Caution.—To minimize difficulties with fish traps and stakes, it has been reported that some vessels proceed to a position 1.5 miles E of Pulau Damar-besar and then proceed on a course S toward Tanjungpriok.

Jakarta Roadstead, lying N of the city, is no longer used to any extent.

The best anchorage in the roadstead is in depths of 9 to 10.9m, mud, N of the two moles that form the canal that leads to Jakarta.

Karang Puluputri (Pulau Puteri) (6°04'S., 106°51'E.), a reef, with a least depth of 4.2m, lies 3.5 miles NE of the head of the moles. Other dangers in the roadstead have been described.

The canal leads from Jakarta Roadstead to the old town of Jakarta. Before the construction of Tanjungpriok, about 4.5 miles E, it was the highway for inland traffic and is still used by small craft.

The canal is formed by two moles projecting 1.5 miles N from the high water line. When it is dangerous to enter or leave the canal, a blue flag is hoisted at the lookout tower in Jakarta. The E mole is broken about midway of its length to provide a passage for boats.

Tanjungpriok (6°06'S., 106°53'E.)

World Port Index No. 50970

3.12 Tanjungpriok is part of the city of Jakarta. The port is the capital of Indonesia. Tanjungpriok, the principal Indonesian port, is formed by an artificial harbor situated approximately 8 miles E of Takarta. The port may be considered as consisting of three principal parts, as follows::

1. Jakarta Roadstead, lying N of the city.
2. New Roadstead, lying N of Tanjungpriok.
3. Tanjungpriok Harbor, comprised of an outer harbor and a series of inner harbors.

Dangerous cargo must be discharged into lighters outside the harbor area.

Winds—Weather.—Tanjungpriok is influenced by both land and sea breezes. The sea breeze sets about 1000; the Southeast Monsoon brings the wind NE until 1800, with the land breeze coming off about 2000 or 2100.

In the Northwest Monsoon, the sea breeze deflects the W wind into the NW. The effect of the land breeze shows as a backing wind, only 1 or 2 points S of W at night.

The time of the monsoon change and the duration of the monsoons show some variability from year to year. When the Southeast Monsoon sets in late, and is below the normal development, the rainfall is usually in excess.

Occasionally, at the change from the Southeast Monsoon to the Northwest Monsoon, fairly strong SW or WSW winds, usually accompanied by dry weather, are experienced at Jakarta.

Haze, which is common during the Southeast Monsoon, may, on rare occasions, cause the visibility to fall to 1 mile or less in the vicinity of Jakarta and Tanjungpriok.

Tides—Currents.—The spring rise of tides in the harbor of Tanjungpriok is 1.1m.

There is almost no current in the roadsteads and off the entrance to the Outer Harbor. A weak current constantly flows out of the harbor and sets across the fairway; it poses no problem for entering vessels.

Depths—Limitations.—Tanjungpriok is divided into Outer and Inner Harbors, which are protected by breakwaters.

The Outer Harbor is entered between two moles which extend 0.9 mile N from the Inner Harbor and are almost awash at high water; the sea frequently breaks over them in the Northwest Monsoon.

The entrance, marked by beacons, is 183m wide, but quickly opens to a width of 0.3 mile between the breakwaters. The channel through the Outer Harbor trends between lines of mooring buoys. It is maintained at a depth of 9.4m by dredging; the least charted depth was 10.2m. It was reported (1996) that the entrance channel was dredged to a depth of 12m.

The Inner Harbor will accommodate vessels with a maximum draft of 10m and a maximum length of 170m. The Inner Harbor consists of the prau harbor and five basins; the basins are numbered from W to E.

The prau harbor, known as Pelabuhan Nusantara, is the W of the inner harbors. It has direct communication with the old town of Jakarta by means of the ship canal, which is entered from the W side of Pelabuhan Nusantara and is available for small vessels. It is 676m, concrete, with a least charted depth of 3.8m alongside.

No. 1 Basin is used mainly by inter-island vessels. A vessel, with a length of 245m and a draft of 8.8m, has berthed on the E side of No. 1 Basin.

No. 2 Basin is used by ocean-going vessels. Tugs are essential when mooring and unmooring in this basin.

No. 3 Basin is used by ocean-going vessels. Two container terminals, with a total berthing length of 920m and which can accommodate vessels up to 10,000 dwt, are situated on the E side of No. 3 Basin.

Oil Basin has four T-headed oil piers on its W side. Another wharf fronts a grain terminal on the E side of the basin, with a small dockyard close N of it. Alongside depths are best seen on the chart.

A breakwater or training wall was at the E end of the harbor. It is understood that this area is being developed for tanker berths.

There are six floating docks available, with lifting capacities of up to 12,000 tons.

Aspect.—A chimney, standing 2.3 miles S of the canal entrance to Jakarta, and a conspicuous white monument on shore, 3.5 farther E, provide useful landmarks. The cathedral, 4.5 miles S of the canal entrance, is a prominent edifice with two spires. A white stone tower is situated about 0.3 mile SW of the cathedral. A conspicuous silo, bearing the marking "INDO CEMENT," stands about 200m S of the harbormaster's office.

Pilotage.—Pilotage is compulsory for vessels entering Tanjungpriok. Pilots board near the harbor entrance or at the anchorage in the outer roads. The Port Administration should be notified 24 hours prior to arrival.

Requests for pilots are required 6 hours prior to arrival and 3 hours prior to departure. The pilot may be notified on VHF channels 12 and 14.

Anchorage.—Designated anchorage areas are best seen on the chart.

Caution.—Target practice may be conducted in the bay area N of Jakarta.

There are two shoals NE of the new E entrance to Tanjungpriok. Karang Cikasi (Brunda Reef), with a depth of 4.5m, and Karang Prigem (St Nicholas Shoal), with a depth of 7.6m, lie about 2.3 miles ENE and NE, respectively, of the W entrance to Tanjungpriok.

A depth of 5.2m lies about 0.2 mile NE of the same entrance. A dangerous shoal was reported to lie 1.3 miles NNE of the harbor entrance. Foul areas lie approximately 1.3 miles N and 1.75 miles NE of the harbor entrance.

A gas pipeline, best seen on the chart, extends N from shore close W of Tanjungpriok. These pipelines may not be buried and charted depths may be decreased by up to 2m. Anchorage is prohibited within 500m of these pipelines.

Tanjung Krawang to Tanjung Tanah

3.13 The N coast of Jawa from Tanjung Krawang to Tanjung Tanah, 100 miles ESE, is low, flat and covered with large trees. Several conspicuous mountains, located from 25 to 50 miles inland, are often visible during the Northwest Monsoon, but rarely are seen during the Southeast Monsoon due to haze.

Caution.—A restricted area, which can best be seen on the chart, extends offshore between meridians 106°59'E, 108°46'E. Unauthorized entrance into this area is prohibited.

Gunung Pangrango (6°47'S., 106°56'E.), located about 50 miles S of Tanjung Krawang, is a dome-shaped mountain, 3,019m high. Gunung Gede, 2,958m high, is close SE of Gunung Pangrango. A column of white smoke is often seen to rise from the N side of the W peak of Gunung Gede.

Gunung Sanggabuana, 19 miles NE of Gunung Pangrango, is a round saddle-shaped mountain 1,291m high. Gunung Parang, 7 miles farther E, attains an elevation of 966m, and is the highest peak of a rugged group of mountains.

Gunung Tangkubanprahu, 18 miles SE of Gunung Parang, is 2,081m high. It has an extinct volcanic crater on its E side, which has some resemblance to a capsized vessel. Gunung Bukittunggul, 8 miles ESE of Tangkubanprahu, is connected to that peak by a lower ridge; it has a somewhat bare summit, 2,209m high.

Gunung Tampomos, an isolated conical peak with a round top 1,684m high, is located 14 miles ENE of Gunung Bukittunggul. Gunung Kromong, located 18 miles SSW of Tanjung Tanah, is in a chain of low peaks standing close together; it rises to a height of 587m.

Gunung Ciremay (Tjareme) (6°54'S., 108°24'E.), 10 miles S of Gunung Kromong is 3,078m high. It consists of a truncated, conical-shaped volcano, from which smoke occasionally rises. The nearly flat volcano rises slightly higher on its W side.

From Tanjung Krawang the coast trends ESE, about 20 miles, to Tanjung Sedari. The 20m line lies from 1.5 to 8 miles offshore along this coast. A dangerous wreck lies 12.5 miles NNE of Tanjung Krawang.

Sedari Reef (5°54'S., 107°25'E.), with a least depth of 7m, lies 6 miles offshore, NNE of Tanjung Sedari. A 9m patch lies 2 miles WNW of Sedari Reef and a ridge with a depth of 4.9m, lies between Sedari Reef and the shore. A passage leading between the two dangers is about a mile wide with a least depth of 10.1m.

Tanjung Bobos (6°11'S., 107°49'E.), a low point backed by high trees, is about 31 miles SE of Tanjung Sedari. The coast between the points is low and is intersected by a number of small streams.

The 20m line lies 6.5 miles off Tanjung Sedari and 2 miles off Tanjung Bobos. A dangerous wreck lies 11 miles NNW of Tanjung Bobos.

Sedulang Reefs lie within the 11m line, with the W reef 13.5 miles SE of Tanjung Sedari. These reefs stretch along the coast for a distance of 7.5 miles, with their outer extremity 4.5 miles offshore in places. Pulau Tjiparage is an above-water sand-bank lying 1.3 miles inside the W edge of the reef.

3.14 **Teluk Ciasem** (6°12'S., 107°40'E.) is a bay which lies E of Sedulang Reefs. Ciasem, with a depth of 4.5m, is a small coral reef lying in the middle of the bay.

Several small rivers, navigable only by praus, discharge into Teluk Ciasem.

Pamanukan Rock (6°01'S., 107°53'E.), 10 miles NNE of Tanjung Bobos, is formed of coral and is steep-to.

Arjuna Oil Field contains numerous crude oil production platforms, natural gas liquids processing facilities, and other oil installations, extending 22 miles offshore. Its central gathering platform, B Field, lies 17 miles NNW of **Tanjung Bobos** (6°11'S., 107°49'E.).

Its outlying platforms span up to 28 miles ESE and 34 miles W of the central gathering platform, and they are connected by pipelines. Lights are shown from the platforms.

Restricted area.—Arjuna Oil Field is protected by a restricted area, the limits of which can be seen on the chart. Unauthorized entry in the area is prohibited.

Gas pipelines contain flammable natural gas at high pressure. A ship damaging a pipe could be faced with an instantaneous fire or lose its buoyancy. Mariners are advised not to engage in anchoring, trawling, or other seabed activities within 1 mile of a submarine pipeline.

3.15 Arjuna Marine Terminal (5˚54'S., 107˚44'E.) (World Port Index No. 50340) consists of six lighted Single Buoy Moorings (SBMs), close N of the central gathering station. Three SBMs are occupied by the following moored storage tankers:

1. SBM No. 1—Arco Arjuna.
2. SBM No. 3—Cempaka Nusantara.
3. SBM No. 5—Arjuna Sakti.

For crude oil loading, SBM No. 2 and SBM No. 4 are used by vessels of up to 100,000 dwt and 200,000 dwt, respectively, and can be loaded to a maximum draft of 30.2m.

For liquid butane loading, SBM No.6 is used by vessels up to 50,000 dwt.

A general depth of water in the vicinity is 38m.

Pilotage.—Pilotage is compulsory within the terminal limits. Pilots board vessels in the anchorage or near the moorings. Mooring launches assist vessels to secure to a berth. Heavy weather can delay vessel berthing, and usually there is no berthing at night; however, unberthing may be conducted at any time.

Vessels are recommended to use VHF channel 16, or frequency 156.8 MHz when within range and on approaching terminal. Initial contact is made by the approaching vessels.

Regulations.—Tankers with dirty ballast are not permitted to berth. Indonesian laws are in force at the terminal and the Indonesian flag must be flown by day during a vessel's call. There are no port facilities or medical assistance available.

Anchorage.—There is an anchorage area about 1.5 miles square, centered 2.5 miles N of the terminal.

Vessels should transmit their ETA 72 hours, 24 hours, and 12 hours before arrival. A dangerous wreck lies 4 miles WNW of the anchorage area.

3.16 Pulau Rakit (5˚56'S., 108˚23'E.), 19 miles NNE of Ujung Indramayu, is densely wooded and fringed by a steep-to reef, which partly dries. A light is shown from a white metal framework tower, 50m high, on the S side of the island.

Candikian Reef lies 8 miles NNE of Pulau Rakit with Gosong Reef midway between. Both of these reefs consist of steep-to coral atolls, and are usually marked by discoloration.

A clear channel exists between the two reefs as well as between Gosong Reef and Pulau Rakit, but vessels generally pass S of the island. A dangerous wreck lies 5.5 miles SSW of Pulau Rakit, and another is situated 17.5 miles SE of the same island.

Between Tanjung Bobos and **Ujung Indramayu** (6˚14'S., 108˚18'E.), about 29 miles E, the coast is wooded, and some small rivers, with villages in the vicinity, discharge into the Jawa Sea.

Tanjung Kentong (Tanjung Sentigi), 8 miles WSW of Ujung Indramayu, is fronted by a bank of sand and mud, which extends about 1 mile seaward and is marked by brown discoloration.

A canal for praus and small vessels is entered about 2 miles S of Ujung Kentong. The villages of Cimara and Losarang are on the canal about 2 and 6 miles, respectively, within the entrance. The entrance of the canal is marked by a flagstaff and a beacon.

Anchorage can be obtained off the entrance to the above canal, but the depths decrease rapidly within the 5m line.

Vessels anchoring should not approach closer than 2 miles, nor in depths of less than 8.5m.

Indramayu Road is between Ujung Kentong and Ujung Indramayu, 8 miles ENE. These points are low and form the SW and NE points of Ci Manuk delta.

The coastline in the vicinity of Ci Manuk had extended 1.5 miles seaward from its charted position. A buoy with red and white stripes is moored off the mouth of the river.

The town of Indramayu is 10 miles up river from the mouth of Ci Manuk, but can only be reached by small craft.

Anchorage may be obtained in Indramayu Road, but deep draft vessels should not approach within depths of 22m.

3.17 Balongan (6˚20'S., 108˚22'E.), a small harbor, protected by two breakwaters extending 200m from the shore backed by a tank farm, is 9 miles SE of Tanjung Indramayu. There are two inshore jetties with depths of 3.8m and 4m alongside for coasters. Jetties have been constructed in the inner sides of the breakwaters enclosing the harbor on its NW and SE sides.

A light is shown from each breakwater head. A light-beacon stands on the coast, 1 mile NW of the harbor, and a tower marked by a red light stands near the inshore end of the pipeline, which leads 7 miles NE to the main offshore oil terminal. There is a coastal radio station at the port.

Balongan Oil Terminal (6˚16'S., 108˚28'E.) consists of two SBMs and a group of four conventional mooring buoys. A safe water lighted buoy is moored 2.5 miles NE of the export SBM (Balongan Terminal) and the anchorage lies 3 mile N of the terminal.

Vessels of up to 150,000 dwt, with a length of 290m, can berth at the export terminal, in a depth of 22m.

The domestic SBM and four mooring buoys lie 2.5 miles SW of the export terminal. Vessels of up to 36,500 dwt, with a length of 200m, can berth at the domestic SBM, in a depth of 14.5m.

Pilotage is compulsory and the pilot boards in the vicinity of the SBMs. Vessels berth and unberth during daylight only.

Arimbi Oil Field (6˚20'S., 108˚40'E.) contains two production platforms, about 20 miles ESE of Tanjung Indramayu. An oil pipeline joins the two platforms and leads 15 miles W to Balongan.

The platforms, connected by a pipeline which runs in a 256˚ direction to Balongan, are surrounded by a restricted area. This area extends 1 mile from the platforms and pipeline.

Between Ujung Indramayu and **Tanjung Tanah** (6˚29'S., 108˚33'E.), 20 miles SE, the coast is wooded, but there are many villages visible from the sea. The most prominent object is a tall white chimney of the sugar factory in the village of Karangampel. The chimney stands 5.5 miles W of Tanjung Tanah.

Anchorage may be obtained S of the pipeline restricted area, in depths of 5 to 9m, with Karangampel chimney bearing 200˚.

Tanjung Tanah to Tanjung Blenderan

3.18 Between Tanjung Tanah and Tanjung Blenderan (Ceteng), 147 miles E, a number of rivers flow into the sea. They are only navigable by praus for any distance.

The coast between Tanjung Tanah and Cirebon (Tjirebon), 14 miles S continues to be flat, then the mountains approach nearer the sea.

In the vicinity of **Tanjung Celong** (Tjelong) (6˚55'S., 109˚56'E.), 83 miles E of Cirebon, several stand within 2 miles of the coast.

From Tanjung Celong to Semarang, 29 miles E, the mountains recede, but there are a few isolated hills within 5 miles of the coast.

At Semarang, the coast turns NNE for 35 miles to Tanjung Jati (Djati), then E again 13 miles to Tanjung Blenderan (Beteng). For the first 26 miles NE of Semarang, this stretch of coast is swampy.

The land within for 15 miles, is low; thereafter it is backed by Gunung Muryo (Murjo), which attains an elevation of 1,602m.

An elongated ridge of mountains, lying nearly parallel to the coast, extends E from the S slope of **Gunung Ciremay** (Tjareme) (6˚54'S., 108˚24'E.), at a distance of 20 miles from the coast. The ridge terminates in Gunung Kumbang, a prominent round summit 1,219m high, located 21 miles WNW of Gunung Slamet. Gunung Tapak rises to a height of 340m, 17.5 miles WNW of the same peak.

Gunung Slamet (7˚14'S., 109˚13'E.), 3,420m high, a flat-topped mountain, has a prominent peak, formed by the edge of an old crater, on its NE side. A thick column of smoke is often seen rising from an active crater on the SW side of the mountain.

Gunung Gajah, 13 miles SE of **Tegal** (6˚51'S., 109˚08'E.), is an almost bare rock, 309m high, in the middle of a thickly wooded ridge. It resembles a gigantic elephant with its head to the W.

Two wooded hills, located on the same ridge 2 miles E of Gunung Gajah and of approximately the same elevation, are shaped like coffins.

Gunung Sundoro (7˚18'S., 110˚00'E.) is a peak with an elevation of 3,136m, 32 miles SW of Semarang.

Gunung Ungaran, 15 miles SSW of Semarang, has a round undulating summit 2,050m high. It is connected by a ridge to Gunung Merbabu, 17 miles S.

From Tanjung Tanah to Ujung Brebes, 32 miles SE, the coast recedes to form a bay. The 11m line lies up to 17 miles offshore along this coast.

Tanah Reef, with depths of less than 5m, extends 10 miles ESE from Tanjung Tanah. It is composed of sand and mud, mixed in places with shells. The N edge of the reef is steep-to. The depths increase rapidly to 10m.

Cirebon (Tjirebon) Reef, with a width of 4 miles, extends 13 miles SE from Tanah Reef. Except for an isolated 5.5m patch, 10 miles NE of the entrance to Cirebon, the depths over this flat deepen gradually from 5.8 to 7.9m, until in the vicinity of the delta off Tanjung Sanggarung. In its N part, the bottom is mostly hard sand and mud, but farther S, this changes to soft mud.

A 7m shoal lies 5 miles SW of the 5.5m patch mentioned above.

An Ammunition Dumping Ground is 10 miles ESE of Tanjung Tanah and another, with a radius of 3 miles, is centered 12 miles ENE of the entrance to Cirebon.

Cirebon (Tjirebon) (6˚43'S., 108˚34'E.) (World Port Index No. 51010) stands at the head of a basin which is entered between two moles extending in a NE direction from the shore.

Winds—Weather.—Weather conditions in the vicinity of Cirebon Road vary with the seasonal monsoons. During the Southeast Monsoon (May to October), a very dry local wind from S to SW generally begins between 1900 and 2100, lessening in force at sunrise and ceasing entirely between 0900 and 1000. About 2 hours later a NE to E breeze sets in, usually weak, but occasionally increasing in force in the afternoon; when the latter is the case, it usually shifts to E.

Cirebon Harbor

There is often a swell from ENE, usually increasing towards evening and diminishing in the morning.

Frequently during the Northwest Monsoon, thick white clouds gather in the afternoon on the slopes of Gunung Ciremay and Gunung Slamet. In the afternoon these clouds pack together in a heavy, dark sky and about sunset discharge heavy rain, with squalls from W and SW.

Sometimes the weather remains squally throughout the night; at other times, after a heavy shower, it is calm for a considerable time with a light breeze from SW to W. In the latter part of the night, the wind may blow hard again from NW, generally shifting towards morning to WNW, increasing in force in the morning or afternoon and shifting again to NW.

These strong NW winds continue for days in February, and are mostly coupled with dry weather, but occasionally with showers.

Depths—Limitations.—The entrance channel, to a position abeam the root of the N breakwater, was dredged to about 7m with a least depth of 6.6m close W of the fairway lighted buoy. The inner basin is known as No 1 Basin and the outer basin is known as No 2 Basin. Entrance to the inner harbor, which was open 24 hours, with movements controlled from the signal station, was limited to maximum draft of 4m.

Quays extend along the NE and NW sides of No. 2 Basin. The largest quay, which is 275m long with a depth of 7m

alongside, can accommodate vessels up to 9,000 dwt, with a maximum length of 130m.

Aspect.—Range lights, in line bearing 258˚, lead into the harbor between the head of the moles.

Two prominent aluminum-colored tanks stand close together, close S of the harbor basin. Other prominent marks are the spire of the Roman Catholic Church, 0.3 mile S of the two tanks mentioned above; the water tower, standing 0.75 mile W of the two tanks; and Bukit Jati (Bukit Djati), a round wooded hill 60m high, 3 miles NW of the harbor entrance.

Pilotage.—Pilotage is compulsory. There is a traffic signal station at the root of the S breakwater.

Anchorage.—There are four designated anchorage areas on the roadstead fronting Cirebon, within the harbor limits of 6˚40'S, 108˚40'E, and 6˚44'S.

Anchorage Area A is for vessels with a draft between 8 and 10m. The greatest depth within this area is 11.2m, in a position about 5 miles E of the harbor entrance at the E limit.

Area B lies W of Area A, designated for vessels carrying dangerous goods and tankers, where the greatest depth is 8.8m. There is a dangerous wreck 2.5 miles NNE from the harbor entrance.

Area C lies S of Area B and the safe water lighted buoy, moored 1 mile E of the harbor entrance.

Area D, lying S of Area C, is for vessels awaiting to dock, where the greatest depth is 8.2m. There is a pipeline leading to the shore, marked by a can buoy, which lies close S of Area D.

Ujung Brebes (6˚46'S., 109˚01'E.), 26 miles ESE of the entrance to Cirebon, is a low, wooded point that has been formed by silt from the rivers which flow out in this vicinity.

A light is shown from a white structure, 20m high, on Tanjung Brebes.

3.19 Tegal (6˚51'S., 109˚08'E.) (World Port Index No. 51020), 5 miles SE of Ujung Brebes, is a lighterage port unsuitable for deep draft vessels, entered between two breakwaters which lead to a small harbor. Tegal main harbor light stands about 0.3 mile SSE of the E breakwater head.

The depth in the entrance and close within the harbor is dredged to between 2.1 and 2.4m. There are pilots available and no restrictions on night entry. A blue flag is displayed from the Customs House when entry is dangerous.

Vessels up to 26,000 dwt, with a length of 150m and a draft of 7m, can be accommodated.

Anchorage can be taken in Tegal Road, in depths of 5 to 7m, between 1 and 1.5 miles N of the breakwater heads.

Vessels with drafts exceeding 7.6m should anchor 2.5 to 3 miles offshore. Fish traps are charted in Tegal Road.

Karang Jeruk (6˚49'S., 109˚12'E.), a steep-to coral reef, with an above-water rock, lies outside the 11m line, 4.5 miles NE of the entrance to Tegal Harbor. A lighted beacon stands on the W side of Kerang Jeruk.

Sugali Rock and Pemalang Rock, 1 mile apart and marked by discoloration, with depths of 4.3m and 4.5m, lie outside the 11m line, 4 miles NW of Ujung Pemalang.

Ujung Pemalang (6˚48'S., 109˚32'E.), a low wooded point, lies 25 miles E of Tegal. This area should not be approached in depths of less than 20m, as it is extending N.

Tanjung Gunung (6˚53'S., 109˚48'E.) rises to a small hillock with trees, whose tops attain an elevation of 83m, about 16 miles ESE of Ujung Pemalang. A buoy is moored 3 miles N of Tanjung Gunung, and a dangerous wreck lies 6.75 miles ENE of the same headland.

Tanjung Celong, a high wooded point, lies 7.5 miles E of Tanjung Gunung. The coast is closely backed by a hilly ridge. Gunung Priska, 367m high, is the most remarkable summit on this ridge.

Tanjung Korowelang (6˚51'S., 110˚12'E.), 17 miles ENE of Tanjung Celong, is a low point formed by the silt deposit from Kali Bodri, which has a delta mouth. Two chimneys stand on the W side of this river, 4 miles and 6.5 miles, respectively, S of the point.

Korowelang, a steep-to reef with a least depth of 3m, lies 3 miles NNW of Tanjung Korowelang. The usual route leads N of this danger; it is seldom marked by discoloration.

Karang Bapang (6˚34'S., 109˚50'E.), a steep-to reef with a least depth of 3.3m, lies 19 miles NNE of Pekalongan main light. It is seldom marked by discoloration, and the coast is difficult to identify when in its vicinity. A rock, with a similar depth, is 2.5 miles SSW of Karang Bapang. A light is shown from Karang Bapang.

3.20 Pekalongan (6˚51'S., 109˚42'E.) (World Port Index No. 51030) has an open roadstead which offers little protection from either monsoon. The harbor is formed by the mouth of the Kali Pekalongan which flow out between two concrete moles. The harbor is only suitable for small vessels employed in local trade.

The Customs House stands close within the harbor entrance, and 0.5 mile farther upstream, a bridge, with a fort adjacent to it, spans the river.

A light is shown from a white metal framework tower, 14m high, on the W bank of the river, close within the harbor entrance.

Anchorage can be obtained, in depths of 5 to 7m, soft mud, 1 mile offshore, with the light bearing between 160˚ and 200˚. When approaching from E, a group of casuarina trees, 91m S of the light, are easier to identify.

Between Tanjung Korowelang and Semarang, 14 miles ESE, the coast is mostly marshy.

All the dangers along this sector of the coast are contained within the 20m line, which lies up to 5.5 miles offshore. The coastal reef projects 0.5 mile from the coast in places.

Semarang (6˚57'S., 110˚25'E.)

World Port Index No. 51040

3.21 Semarang is an open roadstead for large vessels; the limits are formed by the arc of a circle, with a radius of 3 miles, from the ligh, on the W side of the inner harbor, about 0.2 mile S of the root of the W mole.

The harbor, formerly suitable only for small vessels and praus, is subject to development.

Winds—Weather.—During the Northwest Monsoon, it either blows hard accompanied by rains or it is almost completely calm; there is seldom any intermediate phase.

Semarang—Tanjung Emas

The finest weather is often replaced, without warning, by squally weather. The monsoon wind is never S of WSW; the main direction of the sea wind during this monsoon is NW and the land wind is reduced in strength.

During the Southeast Monsoon, the land wind usually blows regularly from ESE to SE throughout the night until 0900; then the force diminishes and backs to ENE about 1200.

Until 1400 there are light variable winds and then the sea breeze arrives suddenly from NNE, quickly raising a swell and sea, blowing with great regularity until about 2000.

The wind then veers to ESE, being less regular for a short period and becoming steady again at 2100. Around sunrise, the atmosphere is very hazy, but after a couple of hours of sunshine it becomes clearer, although the land in the interior often remains obscured; towards afternoon it becomes hazy again. During the monsoon, not more than 2 hours a day of even moderately good visibility can be expected.

Depths—Limitations.—Extensive alternations to the breakwaters and coastline have taken place and works were in progress off the NE shore. Tanjung Emas Ocean Terminal(6˚53'S., 110˚24'E.) about 560m in length, was reported to be at the seaward end of the E side of the harbor. The harbor area has been dredged to 9m and can accommodate vessels up to 10,000 tons.

There is an oil terminal, about 4 miles offshore, NNE of the harbor. Pipelines are laid N from a position 1 mile E of the harbor to mooring buoys. The E pipeline extends 3.75 miles NE to buoys marked close seaward by lighted buoys; tankers of 15,000 to 30,000 tons can be accommodated. The W pipeline extends 3 miles NNW to an SBM, moored in a depth of 11.6m, about 2 miles NNE of the head of the W breakwater; tankers up to 36,000 dwt, with a maximum length of 185m, can be accommodated.

Vessels over 800 tons, with a draft and length exceeding 3.5 and 82m, respectively, must anchor in Pelabuhan Semarang.

Aspect.—In addition to Melaya, a hill 56m high, lying about 2.5 miles SW of Semarang, and Semarang light, the railway station, a long white-roofed building close SE, is a useful landmark.

Pilotage.—Pilotage for vessels entering the harbor is reported to be compulsory. Pilots, available 24 hours, berthing between the hours 0600 and 1800, any time for unberthing. A pilot can be obtained on request to the Harbormaster.

During the Northwest Monsoon, the pilot boards under the lee of the W breakwater or a vessel may be led in by the pilot boat.

Signals.—During inclement weather, entrance to the harbor is frequently dangerous, in which case a blue flag is hoisted from the flagstaff near the lighthouse and also from the signal mast of the lookout station.

When communication with the shore is suspended due to bad weather, vessels can make contact with the shore by radio via the Harbormaster.

The following signals are displayed from a flagstaff at the Harbormaster's office for guidance of vessels entering or leaving the harbor:

1. Two cones, points together with a ball between, vertically displayed—Entrance permitted. Praus are forbidden to leave.
2. Two balls, with a cone point up between them, vertically displayed—Departure permitted. Praus are forbidden to enter.

Anchorage.—Large vessels anchor, in depths of 9 to 11m, 3 miles offshore. Small vessels anchor, in depths of 5 to 7m, 1 mile from the head of the W mole.

Caution.—There is a dangerous wreck situated in position 6˚53'15"S, 110˚21'54"E.

3.22 Pulau Penganten (Karang Boker) (6˚38'S., 110˚36'E.), 2.3 miles WSW of Ujung Telukawur, is a reef which has rocks 1.5m high. It was originally an island, but due to erosion it is now a reef. A reef extends about 0.5 mile offshore in the vicinity of Ujung Telukawuri.

Between Ujung Telukawuri and Tanjung Kelor, 2 miles N, the coast recedes to form a bay. Houses can be seen on the shores of the bay among the coconut palms.

Ujung Nyamplung (Njamploeng) lies 1.5 miles N of Tanjung Kelor. It is a low, flat spit of coral and sand, covered with brushwood, but some tall coconut palms stand 0.5 mile within it. Care must be taken not to confuse the coconut palms with the point.

Teluk Kesembu is formed between Tanjung Kelor and Ujung Nyamplung. Pulau Pandjang, a low island covered with coconut palms, lies in the entrance to the bay, about 0.75 mile NW of Tanjung Kelor.

A light is shown from Pulau Pandjang. It can usually be sighted from a distance of 10 miles, where its long low appearance and dark color can easily be distinguished from the coast behind.

Anchorage can be taken in Teluk Kesembu, in depths of 6 to 8m, soft mud, with Tanjung Kelor in line with Ujung Telukawur, bearing 190˚. Do not anchor too close to Tanjung Kelor, as a reef extends 0.3 mile from its N side.

The anchorage may be approached between Pulau Pandang and Ujung Nyamplung, or vessels from the S can pass between Pulau Pandang and Tanjung Kelor, by keeping Ujung Nyamplung on a bearing of 018˚. This track leads over a least depth of 7.6m.

The town of **Japara** (6˚35'S., 110˚40'E.) (World Port Index No. 51050) is on the SE part of Teluk Kesembu, 0.5 mile within the mouth of Kali Japara. Very little of the town is seen, but a fishing village at the mouth of the river is easy to identify. The river is only navigable by small praus.

Between Ujung Nyamplung and Tanjung Blenderan, 19 miles NE, the coast is rocky and irregular with sharp projecting points. The coast NE of Japara is covered with dense forests, and rises rapidly to the mountains.

The coast between Ujung Nyamplung and **Ujung Piring** (6˚30'S., 110˚40'E.), 3 miles NNE, is indented by three bays, with low rocky points, and white sandy beaches between them. Ujung Piring is a low, flat, prominent point covered with low shrubs, and bordered by a white sandy beach.

Tanjung Jati (Djati), 5 miles NE of Ujung Piring, is a wooded point with tall trees to the waters edge; it can only be identified when seen clear of the land behind it.

Karang Ombo, a small shoal with a depth of 7.9m, lies close outside the 11m line, in a position about 1.5 miles N of Ujung Piring. This is the only danger, apart from a dangerous wreck 7 miles farther NE and a 8m patch 1.5 miles NNE of Tanjung Tuwesi.

Tanjung Tuwesi (6˚25'S., 110˚51'E.), 7 miles ENE of Tanjung Jati, rises abruptly from the sea and is densely covered with trees. A below-water rock lies 0.75 mile offshore, 2 miles W of Tanjung Tuwesi.

Tanjung Blenderan (Betong) (6˚24'S., 110˚55'E.), 5 miles E of Tanjung Tuwesi, has a rounded hill, 50m high with a transmitting radiobeacon. A hill, 64m high, lies 0.5 mile W of Tanjung Blenderan, and together with the hill on that point, assist in identifying the point when approaching from W.

Pulau Mondoliko (Mandlika) (6˚23'S., 110˚55'E.) a rocky, wooded island rising steeply from the sea, is 74m high and lies within the 11m line, 1.3 miles N of Tanjung Blenderan. A light is shown from a white metal framework structure, 16m high, on the summit of the island.

Small vessels wishing to use the narrow channel between the island and Tanjung Blenderan should stay in mid-channel and not approach the SE coast of the island too closely.

The usual track is N of the island, taking care to stay in depths of not less than 10m, but it was reported that less water than charted existed on this side of the island.

Kepulauan Karimunjawa

3.23 Kepulauan Karimunjawa are a group of 25 islands and other dangers lying off the N central part of Jawa, 42 miles NW of Pulau Mondoliko. Pulau Karimunjawa, the largest island of the group, together with Pulau Kemujan, close NE and Pulau Genting, 7.5 miles E, are probably of volcanic origin.

The remainder of the islands are generally flat and of coral formation, with the exception of Pulau Parang, 11 miles WNW of Pulau Karimunjawa, which is rocky on the N side and rises to a height of 80m.

All the islands are thickly wooded, the lower ones mostly with shrubs and coconut palms. The reefs surrounding these islands can be readily seen by the discoloration of the water.

Trade is principally carried out with Semarang and Japara by small ships and praus. Trade is also conducted with Bali, Timor, and islands farther E.

A conservation area is established throughout the archipelago from parallel 5˚40'S to 5˚59'S and between meridians 110˚05'E and 110˚31'E.

An unexploded ordinance is reported to lie 17 miles N of Pulau Benkoang and 14 miles E of Pulau Gundul.

Pulau Karimunjawa (5˚51'S., 110˚27'E.), the largest and most important island of the group, can be identified from a considerable distance owing to its mountainous character. The highest peak of the island rises to an elevation of 506m, 2.5 miles NNE of Tanjung Pudak.

Spurs branch off from the peak to the various points of the island, which are mostly composed of large boulders.

A light is shown from Tanjung Pudak.

The island is fringed by a stone and coral reef with several detached patches of coral outside it, especially on its W and N side.

It was reported that Pulau Karimunjawa was a good radar target at a distance of 20 miles.

Tanjung Pudak slopes gradually to its outer extremity. A prominent round-topped tree stands about 0.3 mile within the point and affords an excellent mark for making the anchorage on the SW side of the island.

Pulau Batu is a bare rock lying in the middle of a bay, 1 mile NNE of Tanjung Pudak, and is connected to the island by a reef.

Tanjung Benteng lies about 1 mile NW of Tanjung Pudak, and Tanjung Gelam, the W extremity of the island, lies 3.75 miles NNW of Tanjung Pudak.

Pulau Menjangan-besar fronts the stretch of coast between Tanjung Pudak and Tanjung Benteng, and is less than 0.5 mile offshore in places; the W side of this island is low and is extending seaward.

There is a narrow channel between the reefs fronting Pulau Menjangan-besar and the main island, with depths of 7 to 18m, but there is a 0.5m patch in the NW entrance of the channel. The current in the channel is often strong and sometimes there are eddies.

Pulau Menjangan-kecil lies a little more than 0.5 mile W of Pulau Menjangan-besar and is separated from that island by a channel with depths of 18 to 21m. A 3.5m patch lies in the fairway, 0.25 mile SE of the N extremity of Pulau Menjangan-kecil.

Patches with depths of 3.5m and 4.9m lie about 0.3 mile N and 0.25 mile NNE, respectively, of this same point. Karang Wangkang is the largest of several reefs which front the NW entrance of the channel; it lies 0.65 mile N of Pulau Menjangan-kecil. Local knowledge is essential to transit this channel.

Karimunjawa consists of a few houses on Tanjung Benteng; a boat pier projects from the W side of the point and a flagstaff stands near the pier.

Anchorage during the Southeast Monsoon may be obtained 1 mile N of Pulau Menjangan-kecil, in depths of 26 to 27m, sand. To make this anchorage from S, pass at least 0.5 mile W of Pulau Menjangan-kecil until the prominent tree on Tanjung Pudak bears 114˚, then steer for this tree and anchor when Tanjung Gelam and the E extremity of Pulau Bengkoang are in line bearing 002˚.

During the Northwest Monsoon, fairly good anchorage can be obtained 0.5 mile SW of Tanjung Pudak, in depths of 27 to

31m, sand. The bottom is uneven and frequent eddies cause a vessel to swing violently.

To make this anchorage, keep Pulau Tjemara-kecil in line with Tanjung Benteng, bearing 313˚, and anchor when Pulau Genting disappears behind Tanjung Pudak.

There are better berths close under the coast of Pulau Karimunjawa, in depths of 20 to 22m, but it is essential that the edges of the reefs are visible or that the assistance of a local fisherman be obtained.

3.24 **Pulau Kemujan** (Kemudjan) (5˚48'S., 110˚29'E.), close NE of Pulau Karimunjawa, is separated from that island by a narrow channel. The only hill on the island is 114m high and stands close within its S coast. A few headlands are rocky and attain elevations from 24 to 30m; elsewhere, the island is low and wooded.

The coastal reef extends, in places, 1 mile off the W side of the island. The sea area SE of the narrow passage separating the two main islands is foul.

Pulau Sintok is 1.5 miles ESE of the N extremity of Pulau Kemujan. It is low and covered with coconut palms and casuarina trees. This islet lies at the N end of a chain of islets and reefs lying roughly parallel to the coast of Pulau Kemujan, as far as the SE extremity of that island.

Unexploded ordinance is charted 47 miles NNE and 54 miles NE, respectively, from the N extremity of Pulau Kemujan.

Pulau Kembar (5˚44'S., 110˚11'E.), 15 miles WNW of Pulau Karimunjawa, is the NW island of the group. It is covered with bushes and fringed by a reef; there is a drying sandbank on the N end of the reef.

Karang Besi is the N part of an extensive reef that lies 3 miles SSW of Pulau Kembar. Karang Katang is the S part of this reef; there are drying sandbanks on the reef. Drying wrecks lie 1 mile W and 1.3 miles WSW of Karang Katang.

Pulau Katang and Pulau Njamuk lie 4 miles SSW and 4 miles S, respectively, of Pulau Kembar. They are small wooded islets surrounded by reefs. A light is shown from the S side of Pulau Njamuk from a 30m high, framework tower.

Gosong Selikur is a small reef on which there is a drying sandbank, 1 mile NE of Pulau Kembar.

Pulau Parang (5˚45'S., 110˚14'E.) is a rocky, wooded island, 80m high in its N part; its S part is low. The entire island is fringed by a reef. Pulau Kumbang, a small islet, lies 0.5 mile SW of the S extremity of Pulau Parang.

Gosong Kumbang, 2.5 miles SSE of Pulau Parang, is a small above-water sandbank, surrounded by a coral reef with some drying rocks.

Pulau Karkal-besar and Pulau Karkal-kecil lie 3.5 miles and 4 miles SSW, respectively, of Gosong Kumbang.

Karang Kapal (5˚54'S., 110˚14'E.), the SW danger of the group, an extensive reef which partly dries, lies 2 miles S of Pulau Karkal-kecil and 13 miles W of the S extremity of Pulau Karimunjawa.

Karang Bengkoang (5˚44'S., 110˚25'E.) is a low, wooded (5˚44'S., 110˚25'E.) is a low, wooded island fringed by a reef 5 miles NW of the N extremity of Pulau Kemujan. Taka Menjawakan is a small reef, with a depth of 1.5m, 5 miles WSW of Pulau Bengkoang. The reef can only be seen from a short distance, as there is no discoloration of the water.

Pulau Tjemara-besar and Pulau Tjemara-kecil are low reef-surrounded islets lying 3 miles NW and 2 miles WNW, respectively, of the W extremity of Pulau Karimunjawa. Pulau Menjawakan, a reef-encircled islet, lies 2 miles WNW of Pulau Tjemara-besar.

Pulau Gelean and Pulau Burung are flat islets, 5.5 miles WNW and 6.3 miles W, respectively, of the S extremity of Pulau Karimunjawa.

3.25 **Pulau Gundul** (5˚47'S., 110˚35'E.), a mass of rock 45m high, is 5.75 miles ESE of the N extremity of Pulau Kemujan. It is almost bare, but scantily covered with low brushwood; its fringing reef, which projects 45m offshore, is steep-to.

Caution.—A naval gunnery and torpedo practice area exists within a 3 mile radius around Pulau Gundal. An unexploded ordnance also exists 7.5 miles N of this island.

Pulau Cendiakian (Tjendiakian) is low, wooded, and encircled by a reef which stretches almost halfway to Pulau Gundul, 1 mile NE.

Pulau Genting (5˚51'S., 110˚36'E.), the E island of Kepulauan Karimunjawa, lies 8 miles E of Pulau Karimunjawa and is marked by a light. The island is covered with tall trees, and reaches a height of 100m on its E side.

A coral reef encircles the island and extends 1.5 miles off its NW side. A small islet is on the reef, 1.3 miles NW of Pulau Genting. Pulau Seruni is on the reef, 0.75 mile W of the SW extremity of Genting.

An unexploded ordinance was reported to lie 8 miles E of the N extremity of Pulau Genting. An unexploded ordnance has also been reported to lie between 10 and 20 miles NE of Pulau Genting.

A dangerous rock, with a depth of less than 2m, was reported to lie 0.5 mile SE of the S extremity of Pulau Genting.

Sverre Reef (6˚02'S., 110˚21'E.) has a least depth of 4.9m and consists of large boulders, surrounded by broken coral and sand.

The reef, 10.75 miles SSW of Pulau Karimunjawa, can be recognized by the light color of the water surrounding it.

Gosong Jag Vijay (5˚09'S., 111˚24'E.), with a least depth of 7.6m, lies 65 miles ENE of Pulau Kemujan.

There is an obstruction 2.5 miles SW; shoals of 9.1m and 12.8m depths are located 5 miles WSW and 16 miles SW, respectively, of Gosong Jag Vijay.

Tanjung Blenderan to Ujung Pangkah

3.26 The coast from Tanjung Blenderan to Tanjung Api Api Anom, 8 miles E, is low and covered with vegetation. Depths of less than 2.4m extend 4 miles NE of Tanjung Api Api Anom.

From Tanjung Api Api Anom to Ujung Pangkah, the W entrance point to the N entrance to Selat Surabaya, 96 miles ESE, the coast has a wooded and fertile appearance. It is formed by sandy beaches fronted by sand and stones.

Good holding ground exists everywhere, the bottom near the coast being soft gray mud. Farther seaward, the bottom is blue mud and black sand, frequently mixed with broken shell; there is an underlayer of thick clay.

A dangerous wreck was reported to lay in the middle of the bay, about 9.5 miles offshore, 16.5 miles SE of Tanjung Api Api Anom.

The coast trends E from Tanjung Blenderan, 8 miles to **Tanjung Bugel** (6˚25'S., 111˚03'E.), a low point which is hard to identify but is marked by a light.

Between Tanjung Bugel and Tanjung Bendoh, 29 miles SE, the coast recedes and forms a bay. Juwono and Rembang Roads are at the head of this bay.

Gunung Niangu (Gunung Nglangu) (6˚57'S., 111˚08'E.), 453m high, 31 miles S of Tanjung Bugel, is prominent. Gunung Lasem rises to a height of 806m, 4.5 miles SSE of Tanjung Bendoh.

Its two highest peaks are 1 mile apart. Gunung Lasem is connected to mountains farther S by a lower ridge.

Bugel Bank, an extensive mudbank, steep-to on its N side, stretches 4 to 5 miles offshore between Tanjung Api Api Anom and Tanjung Bendoh, with depths of less than 5m.

It has been reported that this bank has been extending seaward. Vessels rounding this bank should keep at least 1 mile clear of its edge, in depths of not less than 18.3m.

Juana Road (6˚39'S., 111˚12'E.) (World Port Index No. 51060) is an open road, 16 miles SSE of Tanjung Bugel. The town of Juana is about 3 miles upriver and is not visible from the sea.

Only the red and white roofs of the warehouses are sometimes seen, and the chimney of the sugar mill, situated about 5 miles NW of Juana is sometimes visible when the sun shines on it.

Vessels can anchor according to draft, with the mouth of Kali Juana bearing between 210˚ and 225˚. Care must be taken to avoid the wreck, with mast showing, marked close N by a buoy.

Vessels approaching Juana Road from W, after rounding the steep-to N extremity of Bugel Bank in not less than 18.3m, can steer for the anchorage, as the E side of the bank is very flat and can be easily sounded.

Vessels coming from E, after passing Tanjung Bendoh at a distance of 2 to 3 miles, can steer due W for the road.

The 5.5m line lies about 5 miles NE of the mouth of Kali Juana. Between Juana and Rembang there are a number of islets, reefs, and rocks.

3.27 Karang Juana (6˚40'S., 111˚13'E.), 2.3 miles ENE of the mouth of Kali Juana, dries in places. There is a large rock on the reef covered by a bush. A light is shown at a height of 5m, 0.75 mile N of the rock. Karang Laut, which dries, lies 1 mile NW of the mouth of Kali Juana, 2.5 miles WNW of Karang Juana.

Pulau Marungan, 3 miles E of Karang Juana, has some coconut palms. The island is bordered on its N side by a drying reef which extends 0.5 mile offshore. Penowo Reef lies outside the 5.5m line, 1.75 miles NNE of Pulau Marungan; the reef dries, and is marked by discoloration when covered, and by breakers in bad weather.

Pulau Masaran, a patch of sand with some below-water rocks within 0.2 mile N and NE of it, is 3.3 miles SE of Penowo Reef. There are several reefs and islets within an area formed by a line joining Pulau Marungan, Penowo Reef, Pulau Masaran, and thence 3.3 miles W to Pulau Marungan. Other shoals are charted close S of this area.

Seliro, a submerged rock, lies 0.5 mile offshore, 1.3 miles SE of Pulau Masaran.

3.28 Rembang Road (6˚41'S., 111˚21'E.) (World Port Index No. 51070) is a lighterage port open to NE and NW winds. The town of Rembang lies 10 miles WSW of Tanjung Bendoh and is unmistakable. A clump of trees stands on the foreshore near the W end of town. The high red roof of the former residency and the white buildings of the nearby club are readily identifiable. A flagstaff is near the clump of trees.

When approaching the road, keep in depths of not less than 10m until the residency or the club bears 180˚, then proceed to anchorage on this bearing.

Anchorage can be obtained N of the town in any suitable depth; mud bottom. It is calm here during the Southeast Monsoon, but there is some sea in the Northwest Monsoon.

Pulau Sualang (6˚41'S., 111˚23'E.) is 2.75 miles ENE of the flagstaff at Rembang. It has some above-water rocks on its N side. Karang Gurian, a small reef with a drying patch of sand near the middle, lies 0.75 miles offshore, 1.75 miles WSW of Pulau Sualang.

Jetah lies within the 5.5m line, 1.75 miles E of Pulau Sualang. There is an above-water rock on this small reef.

Lasem is a town standing on the Kali Lasem, 1.5 miles inland, about 6 miles E of Rembang.

Gosong Reef (6˚39'S., 111˚26'E.), partly dry at high water, lies outside the 5.5m line, 2 miles NE of Jetah.

3.29 Tanjung Bendoh (6˚37'S., 111˚30'E.) is devoid of vegetation and is difficult to identify. A village, about 0.3 mile S of the point, can be recognized by the conspicuous and isolated coconut palms, which appear as an island when seen from the E.

From Tanjung Bendoh, the coast trends in an ESE direction to Tanjung Awarawar, about 30 miles distant.

Tanjung Kapal is a low point, 4.5 miles ESE of Tanjung Bendoh. From Tanjung Kapal to Tanjung Petakol, 14 miles SE, the coast is marked by a line of coconut trees.

Tanjung Petakol, a rocky point 17m high, can be identified by the dark trees; the point has been reported as a good radar target at 21 miles.

Tanjung Awarawar (6˚46'S., 111˚57'E.) is a low point, 11 miles E of Tanjung Petakol, reported to be a good radar target at 15 miles.

From Tanjung Bendoh to Tanjung Awarawar, the 20m line lies up to 5 miles offshore, and along this same stretch, the coastal bank extends up to 0.75 mile offshore.

Sarang is a village, 8.75 miles SE Tanjung Kapal. There is a small fishing harbor here, sheltered by two stone breakwaters.

Bancar (Bantjar) is a village close E of Tanjung Petakol. Good anchorage can be obtained during the Southeast Monsoon off this village.

A shoal, with a depth of 4.5m, lies 3.75 miles E of Tanjung Petakol and 1.75 miles offshore.

From Tanjung Awarawar to Tanjung Batu Sawang, 19 miles ESE, the coast recedes and forms a bay, then the coast trends in a general E direction 16 miles to Ujung Pangkah.

There are no known dangers outside the 11m line, except for the dangerous wrecks that may be seen on the chart. The coast may be safely approached by sounding, but for details concerning mined areas, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Between Tanjung Awarawar and Tuban, 10 miles SSE, the coast is low and backed by paddy fields.

3.30 **Tuban** (6˚54'S., 112˚04'E.) (World Port Index No. 51100) is an open road that is bound on the N by the parallel of 6˚50'S, and on the E by the meridian of 112˚07.5'E, and on the S and W, by the coast. The road is open to the NE and NW winds and there is always a swell.

The village of Tuban is recognizable by some large dark trees and the white chimney of a factory. A pier, 0.4 mile long with a depth of 2.5m alongside, fronts Tuban. A flagstaff stands near the root of the pier.

Anchorage may be taken with the flagstaff bearing 203˚, 4 miles distance, in 9.1m, sand and mud bottom.

Tuban Oil Terminal, a moored storage tanker, lies about 10 miles NE of Tuban. Vessels anchor about 3 miles N of the storage tanker; pilots board at the anchorage.

Tanjung Batu Sawang (6˚52'S., 112˚17'E.) is located 8.5 miles ENE of Palang. An above-water rock lies 0.4 mile N of the point.

The village of Brondong, with a prominent white house and a mosque, stands 0.5 mile SE of Tanjung Batu Sawang.

Tanjung Pakis, a steep point, 7.75 miles E of Tanjung Batu Sawang, rises to a wooded hill, and 2.5 miles SSW is a hill 152m high.

The coast between Tanjung Pakis and Ujung Pangkah, 8 miles E, is backed by hills.

The highest summit is Gunung Malang, 131m high, which rises 6 miles SW of Ujung Pangkah.

Ujung Pangkah (6˚51'S., 112˚33'E.) is low and not easily distinguished.

The white stone houses and the mosque in the village of Pangkah, 4.3 miles S, are plainly visible against the high coconut palms in the vicinity.

It was reported, that due to a landslide, Tanjung Pangkah has extended 1.5 miles seaward of its previously charted position. Two wrecks lie 1 mile apart, approximately 4.75 miles ENE of the N extremity of Ujung Pangkah; another wreck lies 1.5 miles N of the point.

The **Poleng Oil Field** (6˚40'S., 112˚55'E.) is about 15 miles NNE of Tanjung Modung. Numerous structures, not all of which are charted, some marked by lights, other unlit objects and submerged obstructions, sometimes marked by buoys, exist in the field.

It is an Entry Restricted Area. An oil loading terminal is within the field. Vessels proceed alongside the tanker Lynda (72,000 dwt) moored stern-to at an SBM. Vessels berth port side-to and the master of the Lynda acts as a pilot.

Anchorage is possible 1 mile NW of the SBM, clear of field installations. There are no facilities available at the terminal.

Caution.— Vessels transiting S of Poleng Oil Field should pass S of a dangerous wreck, the position which is approximate, situated 1 mile E of the S extremity of the restricted area of the oil field, and N of a dangerous wreck reported in position 6˚47.3'S, 112˚57.7'E.

Selat Surabaya

3.31 Selat Suribaya separates the NE coast of Java from the large island of Madura. This waterway is approximately 50 miles long and about 1 mile wide at its narrowest point.

The N entrance of Selat Surabaya is between Ujung Pangkah and **Tanjung Modung** (6˚55'S., 112˚49'E.), the NW extremity of Madura, 18 miles ESE of Ujung Pangkah. This area is almost entirely occupied by an extensive shoal flat.

The E entrance of Selat Surabaya is reached through Selat Madura and a buoyed channel that connects Selat Surabaya and Selat Medura.

Tanjungperak, the port of **Surabaya** (7˚12'S., 112˚44'E.), second in importance only to Tanjungpriok, the port of Jakarta, is 25 miles SSE of Ujung Pangkah and is described later in paragraph 3.38.

Caution.—Areas within the approaches to Selat Surabaya remain dangerous due to bottom mines. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for details.

Selat Surabaya—North Approach

3.32 Between Ujung Pangkah and Tanjung Sau (Sawo), 14 miles SSE, the land is low with a few round-topped trees. Gunung Malang serves as a good landmark for identifying Ujang Pangkah.

During the Northwest Monsoon, vessels approaching the channel should sight this hill before sundown.

Between Tanjung Sau (Sawo) and the town of Gresik, 5.5 miles S, the overgrown low coast recedes. There are many fish ponds with several small streams flowing out.

Leleng Barat, a narrow ridge which dries in places, lies 9 miles SE of Ujung Pangkah. Lereng Tengah, lying 2 miles E of Lereng Barat, is also a narrow ridge of hard sand, with a least depth of 1m.

Caution.—A submarine pipeline is laid on the W side of the channel, which follows the general line of the approach from N of No.1 Buoy to Gresik. A dangerous wreck lies on the W side of the channel, 3 miles S of Tanjung Sau (Sawo).

Dermaga Petrokimia, a T-head pier, 625m long, fronts a fertilizer factory 1 mile NW of Gresik. The pier extends 0.5 mile E from the shore and has depths of 12 to 14m at the outer side of its head. Vessels up to 200m in length overall and 30,000 dwt can berth at the outer face of the pier; vessels up to 10,000 dwt berth at the inner face.

A conspicuous chimney, with red and white bands, stands along with industrial buildings, 0.5 mile WNW from the root of the pier. A small mole, which forms the N side of a boat harbor, 0.5 mile S of Dermaga Petrokimia, fronts Gresik.

3.33 **Gresik** (7˚09'S., 112˚39'E.) (World Port Index No. 51120) was formerly the main port in Selat Surabaya before the construction of Tanjungperak. The port is situated on the western outskirts of Surabaya. There are several old massive stone warehouses in the town.

Depths—Limitations.—Pertamina Wharf , situated 1 mile S of Dermaga Petrokimia, consists of a concrete T-head pier with dolphins and a depth of 8.6m alongside. It may

accommodate asphalt tankers of 5000 dwt having a length of up tp 100m.

Dermaga PLTU, a stone T-head pier 300m long at its head and with a depth of 14.6m alongside, projects ENE from the shore, 0.8 mile N of Tanjung Semambung. A conspicuous chimney, painted in red and white bands, and backed by industrial buildings, stands 0.4 mile W of the root of the pier.

Dermaga Semen, a 288m long T-head pier, with depths of 10 to 20m alongside its head, projects E from the shore about 0.5 mile N of Tanjung Semambung. Tankers up to 163m long, with a maximum draft of 8.7m, can be accommodated

Pilotage.—Pilotage is compulsory. Notification of arrival should be sent 24 hours in advance.

Anchorage.—Two submarine power cables cross the fairway in an ENE direction, one between Dermaga PLTU jetty and Tanjung Tanjungan, and another between Dermaga Semen and Tanjung Tanjungan. Anchorage is prohibited between these cables.

Caution.—Two stranded wrecks lie close N of the mole at Gresik. Three dangerous wrecks, two of which are unmarked, lie in the S approach to Dermaga Semen, between 0.4 and 0.6 mile SE of the pier head.

3.34 Tanjung Semambung (7˚11'S., 112˚40'E.), 1.5 miles SSE of Gresik, is the SE extremity of a promontory and rises in Gunung Petukangan, 125m high, 1.8 miles W.

Between Tanjung Semambung and Tanjung-perak, 4.5 miles SE, the coast recedes and forms a shallow, mud and sand filled bay.

Between Tanjung Modung and **Ujung Piring** (7˚02'S., 112˚41'E.), 11 miles SW, the coast is low and wooded. There are several towns, the largest is Bangkalan.

Gunung Geger (7˚02'S., 112˚56'E.), 284m high, 11 miles E of Bangkalan, is a prominent, densely wooded, flat-topped hill, with light patches. Gunung Kampek, 138m high, 6.5 miles W of Gunung Geger, is less identifiable, and another hill, 64m high, which is precipitous on its N side, rises 3.3 miles NW of Gunung Geger, and is marked by light patches.

Karang Jamuang (6˚56'S., 112˚44'E.) lies close E of the navigable channel, about 5.5 miles WSW of Tanjong Modung. A light, with a racon and beacon, is close NW of Karang Jamuang. A training wall, awash at high water, extends 6.75 miles SSW from Karang Jamuang to Ujung Piring.

A dangerous wreck, with visible masts, lies 1 mile N of Karang Jamuang. Another dangerous wreck lies 2.5 miles SSW of Karang Jamuang.

3.35 Ujung Piring (7˚02'S., 112˚41'E.) is the N extremity of a low island, 16m high near its center. The island is covered by paddy fields with several villages, and is separated from Madura by fish ponds.

From Ujung Piring, the coast trends 2.5 miles SSW to Tanjung Bulu, then SSE 1.75 miles to Tanjung Junganyar.

A dangerous wreck lies 2.5 miles WSW of Tanjung Junganyar. Van Drieen, a stone reef with a depth of 2.5m, is located near mid-channel 2.3 miles SW of Tanjung Junganyar.

From Tanjung Junganyar, the S extremity of the low island, to Tanjung Tanjungan, 3.5 miles S, the coast is fronted by fish ponds. Tanjung Kamal is located 2.3 miles SE of Tanjung Tanjungan. Tanjungperak is located across the strait, 1.5 miles S of Tanjung Kamal.

Along the coast, between Tanjung Modung and Ujung Piring, the mudbank extends as much as 0.75 mile offshore. From Tanjung Batu to Tanjung Tanjungan, mud and sand banks extend up to 1.75 miles offshore; along this stretch there are many fish traps.

From Tanjung Modung, the road follows the coast to the town of Bangkalan. A conspicuous white mosque stands in the vicinity of Sebaneh, about 6.5 miles SW of Tanjung Modung.

Buffels, two large rocks, lie on the N side of the channel, 1.3 miles W of Tanjung Kamal. Stranded wrecks lie 0.25 mile NE and 0.5 mile W of Buffels. Pisang Reef, with a least depth of 1.2m, is on the S side of the channel, 1.3 miles SW of Buffels, and is steep-to on its E side.

Winds—Weather.—During the Southeast Monsoon, the sea breeze is N and commences about noon, decreasing toward evening. Near sunset the land breeze is from the S. It is frequently hazy in the early morning.

During the Northwest Monsoon, the wind usually blows strongly during the forenoon from NW and WNW. It remains from this direction throughout the day, and then gradually changes over to a light SW wind, 4 to 10 knots, at night.

Tides—Currents.—Currents throughout Selat Surabaya are tidal, but the Southeast Monsoon forces water up in the channel sufficiently to cause a noticeable strengthening of the N current and a weakening of the S current.

The direction of the current is N and S, and the current runs twice daily in each direction. The N current may attain a rate of 2.5 knots.

Depths—Limitations.—It was reported, that the channel across the bar was dredged to a minimum depth of 8.8m.

It was reported that the maximum draft permissible over the bar was 8.5m, but the usual draft was 7.3m.

Pilotage.—Pilotage for passage through Selat Surabaya is compulsory for vessels of over 500 tons. Arrangements should be made through the vessel's agent or the harbormaster at least 48 hours in advance and repeated 24 hours before arrival. Under certain circumstances, such as weather, vessels of less than 3,500 tons may proceed without a pilot.

One of the following signals should be displayed:

1. Pilot service flag—A blue flag with a star in its center.
2. Pennant 1 and flags DO.

The pilot station, a prominent white building with an orange roof, stands on Karang Jamuang. Pilots are available 24 hours a day and board vessels about 4 miles NNE of the Pilot Station, in the vicinity of Lighted Buoy No. 5.

Signals.—There is a radio station at Karang Jamuang, and the Surabaya Port Office may be contacted on VHF channel 16.

Regulations.—Deep draft vessels must use a tug between Lighted Buoy No. 5 (6˚52'S., 112˚45'E.) and the SSW end of Lereng Tengah.

Overtaking or passing another vessel between Lighted Buoy No. 5 and the SSW end of Lereng Tengah is not permitted, nor is it permitted to overtake or pass another vessel between Lighted Buoy No. 8, moored 2.5 miles SW of Tanjung Junganyar, and Lighted Buoy No. 19, moored 1.75 miles SSW of Tanjung Kamal.

Anchorage.—Anchorage for vessels awaiting the pilot or tide, may be taken in an area about 6.5 miles NW of Tanjung Modung, in 28m, mud. Foul ground is charted in the designated anchorage area.

The anchorage space in Tanjungperak roads is limited. Large vessels should enter Selat Surabaya only at such times as to insure that the roadstead is not reached in a strong E current.

Directions.—The best time to enter the swept channel is prior to slack water in Tanjungperak roadstead. During the Northwest Monsoon, there is little difficulty in making the entrance. During the Southeast Monsoon, especially in the morning, the prevailing mist and haze frequently hide the coastal hills of Jawa and Madura, but the coast can be approached until within a depth of 20.1m.

Vessels approaching from W can obtain a position by bearings on the hills SW of Ujung Pangkah, and those approaching from E can obtain a position by bearings on the hills of Madura.

When the vessel's position has been fixed, the swept channel should be approached from a position 2 miles NE of No. 1 lighted buoy, moored 10 miles NW of Tanjung Morong and a course of 180° steered, about 6 miles, to the anchorage area or to the pilot boarding area.

The buoys marking the channel over the bar are laid in a SSW direction from a position approximately 5 miles WNW of Tanjung Modung. These buoys are moved as necessary to conform with the constant changes in depth and direction of the channel.

A range, bearing 200°, aligned on **Mapia** (6°59'S., 112°42'E.), Ujung Piring, and Ujung Slempit should be followed until Lighted Buoy No. 11. Thereafter, follow the marked channel. The channel buoys and lighted buoys are marked in accordance with IALA Maritime Buoyage System (Region A).

Caution.—In the approach to Selat Surabaya and within the strait, there are many dangerous and stranded wrecks which may best be seen on the chart.

Depths in the N and NE approaches to Selat Surabaya may be less than charted.

A danger area, which extends from Ujang Pangkah E to the N coast of Madura, and then 10 miles N, is situated at the entrance to Selat Surabaya. See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for details.

Selat Surabaya—East Approach

3.36 The E approach to Selat Surabaya is through Selat Madura and a buoyed channel that connects Selat Surabaya and Selat Madura. The approach to Surabaya is through a swept channel marked by a lighted buoy (7°23'S., 113°00'E.), then over a bar which extends from **Kali Porong** (7°32'S., 112°51'E.), to a position on Madura 25 miles NE.

The least depth over the bar in the SE approach through Selat Madura was reported to be 3.1m, soft mud.

The S coast of Madura, between **Tanjung Batu Putih** (7°13'S., 113°09'E.), a steep, rocky, light colored point, 12m high, and Tanjung Gumong, 11 miles WNW, is formed by a sandy beach for the first 3 miles, then by a drying reef.

The most noticeable village along this coast is Kadungdung, 6.5 miles W of Tanjung Batu Putih, where the road and railroad reach the coast.

From Tanjung Gumong to Tebul, 8.5 miles WNW, the coast is low and fronted by a drying mudbank. Kessek, a town 4 miles W of Tebul, exhibits a light from a height of 23m, 0.5 mile SW of the town.

Behind this stretch of coast, there is a prominent bare range of hills about 5 miles inland which are useful when approaching Surabaya from SE.

Gunung Telok (7°07'S., 113°00'E.), 265m high, is the E summit of this range, with Gunung Seleret, which has four knobs close together, 3 miles W of it. Gunung Kemere, saddle-shaped and 205m high, stands at the W end of the range, 4.5 miles farther W.

The coast on the W side of the approach is low. Inland, the low plain S of Surabaya has many villages standing amongst paddy fields, and has no noticeable features.

The entrance to Kali Porong is formed by a delta of low, sandy, marshy islets. Within the entrance, the river is embanked through the fish ponds, extending for 6 miles.

Between the entrance to Kali Porong and **Tanjung Tambahagung** (7°27'S., 112°50'E.), 5.3 miles NNW, the coast is fronted by a drying bank. Behind the low, narrow, sandy coast, there are marshy islets backed by fish ponds.

At Sukalila, 13 miles NNW, the coast is similar, with fish ponds extending 4.5 miles inland at the S end, decreasing to 1 mile inland at the N end. The village of Kedung, on the coast about 1.75 miles NNW of Sukalilo, trends NW 1.5 miles to a point close E of the Naval Basin.

Anchorage is prohibited in the vicinity of the submarine cable which extends from shore, 0.75 mile NW of Kedung, in a NNE direction to the S coast of Madura, 0.5 mile WSW of Kessek light. The landing places are marked by notice boards.

Karang Conkeh (Congkeh) (7°29'S., 113°11'E.), the E danger in the SE approach to Selat Surabaya, is a steep-to rock with a depth of 0.9m.

Zwaantjes Reef (Karang Koko), 3.75 miles WNW of Karang Conken, consists of coral, rock, and sand, with an above-water sand cay on its W side.

A light is shown from a white tower. Bura, which dries, is a small reef lying 5.5 miles WNW of Zwaantjes Reef.

Sirumpa (7°25'S., 113°04'E.), a steep-to rock, exhibiting a light, lies 4.5 miles NNW of Zwaantjes Reef.

The reef dries on its SE side. Manila, a steep-to drying rock, lies 6.5 miles NE of Sirumpa.

Pulau Kambing (7°18'S., 113°13'E.) lies on the N side of a drying reef, about 5 miles off the S coast of Madura.

3.37 **Karang Kleta** (7°19'S., 112°52'E.) with a depth of 0.3m, stones and sand, is not marked by discoloration. The reef, which seldom breaks, is about 3 miles off the Jawa coast, 5 miles within the 5.5m line.

The Tongue, a bank of very hard sand, which dries near its NW end, lies on the E side of the channel, 2 miles NE of the village of Sukalila.

Tides—Currents.—The tidal currents flow into the channel with a rising tide and outward on the falling tide. The times of change are near the times of high and low water, but may be irregular due to influence by the prevailing monsoon.

Return to paragraph 3.45

In the vicinity of the outer lighted buoy, the rate of the current is about 2 knots. In the vicinity of Surabaya roadstead, the current is about 4 knots and may exceed this considerably in the narrow parts of the channel.

Outside the fairway, on the banks and under the shore, the current seldom exceeds 1 knot. The rate is stronger at spring tides than at neaps.

Depths—Limitations.—The 20m curve, which lies up to 2.5 miles off the S coast of Madura and the same distance off the coast of Jawa, crosses the SE entrance of Selat Surabaya in a SW direction from a position S of Tanjung Batu Putih, to a position near the mouth of Kali Porong.

The SE entrance of Selat Surabaya is shallow. There was a least depth of 2.1m, soft mud, in the fairway over the bar.

Pilotage.—Pilotage is compulsory. The estimated time of arrival should be radioed at least 24 hours in advance to Surabaya Radio Station.

The boarding ground is in the vicinity of No. 1 lighted buoy (7˚24'S., 112˚57'E.). The pilot, sent from Surabaya by launch, will wait no more than 2 hours for a ship's arrival.

Inbound vessels can anchor seaward of the outer lighted buoy while awaiting the pilot, but may proceed to meet the pilot vessel between the outer lighted buoy and No. 1 lighted buoy.

Vessels desiring to anchor should check Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia, for possible existence of mines.

Regulations.—Overtaking or passing another vessel between the outer lighted buoy and Tanjungperak roadstead is not permitted until No. 7 lighted buoy (7˚11'S., 112˚46'E.) has been passed.

Directions.—As soon as Zwaantjes Reef Light is sighted, steer for the outer lighted buoy. Steer as necessary to clear Bura and Sirumpa.

A dangerous wreck is reported to lie approximately 1.5 miles ESE of the outer buoy. From the outer lighted buoy, steer in a WSW direction for No. 1 lighted buoy, 3.3 miles distance.

Vessels should not enter Tanjungperak via the E approach without the use of a pilot, due to the existence of dangerous wrecks in the channel and the unreliability of aids to navigation.

Surabaya (7˚12'S., 112˚44'E.)

World Port Index No. 51130

3.38 Tanjungperak, situated on the S side of Selat Surabaya, is the port of Surabaya, and is second only in importance in Jawa to Tanjungpriok, the port of Jakarta.

The town of Surabaya stands on the banks of Kali Mas, which is navigable by small vessels. The old or lower part of the town is situated between the entrance to the river and a conspicuous tower on a government building (7˚15'S., 112˚44'E.); it contains the principal government and commercial buildings. The upper or new town lies S of the conspicuous tower.

Surabaya stands on the NE extremity of a low plain covered with villages standing amongst paddy fields. The plain extends W for 25 miles to some moderately high wooded hills, and SSW to Gunung Ardjuna.

Tanjungperak consists of Tanjungperak Basin and the Naval Basin.

Port development and construction W of Tanjungperak Basin is in progress. The project will facilitate seven berths for coasters and a container.

Tides—Currents.—Tidal currents in Tanjungperak roads are mixed, with a predominating semi-diurnal character. The duration of slack water varies considerably.

As a general rule, the stronger the stream, the shorter the period of slack water and vice versa. Close inshore, the current changes direction 1 to 1.5 hours earlier than in the roadstead.

The consequence of the water piling up in the W part of Selat Madura is the same here as occurs in Selat Surabaya. During the Southeast Monsoon, the W current in the roadstead is stronger on the average than the E current.

Depths—Limitations.—The maximum draft for vessels entering the access channel to the port is 9.5m, with a maximum length of 210m.

Jambatan Minyak, lying just E of the entrance to the Naval Basin, is an oil discharge pier. The depth at the W end is 10m and alongside at the E end is 12m. The naval basin has depths ranging from 1.2 to 8.7m.

Bogarsari Wharf (Government Oil Wharf), a dolphin berth extending NNW from the W side of the entrance to Tanjungperak Basin, has an alongside depth of 9m.

In Tanjungperak Basin, the alongside depth at the wharves ranges from 7 to 10.7m.

Berths for small ships and praus may also be found along the banks of the Kali Mas at depths of 3 to 5m.

The new container terminals W of Tanjungperak Basin have reported depths alongside of 9m and10.5m, respectively, although caution is necessary when approaching the terminals as depths may differ from those charted.

Aspect.—On the S coast of Madura, just over 1 mile E of Tanjung Kamal, a hospital serves as a prominent landmark. The tower of the government building, situated 4.5 miles S of Tanjung Kamal, is also prominent.

A tower, 50m high, stands near the S side of the Naval Basin. The harbormaster's office and signal station are situated on the NE corner of Pangkalan Jamrud.

Developmental work, in progress, is forecast to continue. Construction will include the building of new berths and facilities to accommodate expected traffic flow.

Pilotage.—Pilotage is compulsory. Pilotage is available for tankers during daylight hours only, but is available 24 hours for other vessels. The pilot boards near No. 5 lighted buoy. A harbor pilot is available if required and boards at the Inner Roads. The pilot should be requested 24 hours in advance.

The Port Administration provides 8 tug boats, 5 pilot boats, and 5 mooring boats.

Special pilots are required for the Naval Basin.

A vessel requiring a harbor pilot should display the pilot service flag or pennant 1 and flag R.

Signals.—Special signals are used for vessels approaching Tanjungperak and are displayed from the signal station at the harbormaster's office:

Signal	Meaning
Cone, point up	A vessel must await the harbor pilot
Cylinder	A vessel must anchor
Two cylinders, disposed vertically	A vessel must moor
Two red lights at the harbormaster's office	Firing practice is taking place in the SE entrance to Selat Surabaya

Anchorage.—Tanjungperak roadstead is bound on the W by the meridian of Buffels, and on the E by the meridian of the beacon atop a hill, 85m high, 1.75 miles ENE of Tanjung Kamal.

The presence of foul ground and wrecks encumbers the anchorage area and caution must be observed.

An anchorage area has been designated on the S side of the roadstead, just W of the mouth of the Kali Mas.

Anchorage has also been designated in the E area, N of the Naval Basin. This area is restricted and permission must be obtained from the harbormaster. Both areas have depths of 9.4 to 20m, mud and/or sand. In both monsoons, the roadstead offers safe anchorage, but sometimes vessels drag anchor when a strong wind is combined with strong tidal currents.

Anchorage may not be taken within about 0.2 mile of the harbor entrance or Dermaga Jamrud.

Prohibited anchoring and fishing exists N of the mouth of Kali Mas, near the middle of the roadstead. Another prohibited area lies in the SW extremity of the roadstead. The limits of these areas may be seen on the chart.

Caution.—It has been reported (1998) that buoys and other aids to navigation in the approaches to Sura-baya are missing or unreliable.

Madura—North and South Coasts

3.39 The N and S coasts of Madura are described in a clockwise direction from Tanjung Modung, the NW extremity of the island to Tanjung Batu Putih, on the S coast of Madura. The W extremity of the island has been described with the N approach to Selat Surabaya beginning in paragraph 3.32.

Madura has an undulating surface. The hills in the W part seldom exceed 244m, while those in the E range between 305m and 477m. The E end of the island is well cultivated but the interior of the island is, to a great extent, barren.

The S coast of Madura is irregular in contour and in the SE part, it is fronted by numerous off-lying islands and reefs. There are no large ports but Teluk Sumenup, situated W of Pulau Puteran, is of some importance.

Off the NW shore of Madura, an Entry Restricted Area exists between 5 miles NE of Tanjung Modung and 4 miles NW of Labuan. The area is similar to that surrounding Poleng Oil Field (see paragraph 3.30).

An unexploded depth charge is reported to lie on the N limit of the area in approximate position 6˚49'S, 112˚55.

A storage tanker, with a depth of 21.3m alongside, is permanently moored to an SBM, about 3.5 miles N of Labuan, within the charted restricted area.

An anchorage is situated about 2 miles farther N. Dangerous wrecks lies 0.5 mile and 1 mile SSW of the SBM, within the restricted area.

A berthing master boards at the anchorage to assist berthing of the vessel to the storage tanker, port side-to. Vessels are taken to berth during daylight hours only; tugs are available.

The largest vessel loaded at this terminal was 250m long with a displacement of 105,000 dwt.

Tanjung Bulupandan (6˚54'S., 112˚51'E.), about 1 mile NE of Tanjung Modung, is low and covered with shrubs. It can be identified by high trees standing about 0.3 mile ENE.

Between Tanjung Bulupandan and the village of Ketapang, 26.5 miles E, there are many rocks along the steep coast. Ketapang stands at the junction of the coastal road and the road heading S to Sampang, on the S coast of Madura. A waterfall tumbles into the sea about 1.5 miles E of the village.

The village of **Pasongsongan** (6˚53'S., 113˚40'E.) is situated on the coast, 21 miles E of Ketapang. It may be identified by a prominent dark red building. The village of Ambunten, 5 miles E of Pasongsongan, is remarkable for its stone buildings and the flat cultivated land in its vicinity.

3.40 **Tanjung Lapa** (6˚59'S., 114˚07'E.), the E extremity of Madura, is a low promontory covered with coconut palms. It lies 23 miles E of Ambunten.

The coast of Madura, from Ketapang to Tanjung Lapa, is straight and monotonous. Several villages are situated along this coast.

There are some prominent peaks inland along the N coast of Madura which provide landmarks. A range of hills run parallel with the shore, about 2.5 miles inland, and gradually increase in height to the E.

Gunung Bangsereh (6˚56'S., 112˚58'E.), 173m high, about 9 miles ESE of Tanjung Modung, with a round-topped tree on the NW slope, is prominent from the E, close inshore.

Gunung Berukung (6˚56'S., 113˚07'E.), a bare, sloping hill, 229m high, 8 miles E of Gunung Bangsereh, has an isolated stand of high trees on the summit.

Gunung Batu Putih, a conical hill, 191m high, is 5 miles E of Gunung Berukung. The hill has a broad gap on the E side, and four detached groups of trees on the summit, which appear as two thick trees when seen from the W.

Gunung Kumbang (6˚56'S., 113˚24'E.) is a flat-topped hill, 270m high, covered with vegetation. Gunung Waru, 389m high, is a table-topped hill, which rises 9 miles E of Gunung Kumbang.

3.41 **Gunung Pola** (Merangan) (6˚56'S., 113˚42'E.), 398m high, rises 8.5 miles E of Gunung Waru and is the highest peak on the N coast of Madura. Gunung Podjok, 167m high, 4.5 miles ENE of Gunung Pola, appears as a small conical peak from W, but is difficult to distinguish from E.

Gunung Buruan, 285m high, 12 miles WNW of Tanjung Lapa, is an isolated peak with a slightly jagged summit.

Gunung Lapa, 2 miles NW of the same point, is a detached hill, 81m high.

With the exception of a wreck lying 18 miles NNW of Pasongsongan, the N coast of Madura is clear of dangers. The depths decrease gradually as the shore is approached.

The 20m line lies up to 3.5 miles off the N coast and up to 6.5 miles off the NE coast. The mud bottom affords good holding ground everywhere. Inside the 10m line, the mud is mixed with sand. There are several rocky patches close under the shore rendering landing difficult, but at high water, the coast is accessible everywhere.

A reef, with above and below water rocks, extends 1 mile E of Tanjung Lapa. A ridge of sand, with a least depth of 2.4m, lies with its S end 1.3 miles NNE of Tanjung Lapa, and extends 2 miles NNW. The coast in this vicinity should not be approached within 2 miles.

It should be noted that irregular depths of less than 18.3m extend 7 miles off Tanjung Lapa. An obstruction has been reported 7 miles NE of that point. A wreck, marked by a buoy, lies 17.5 miles NNE of Tanjung Lapa.

From Tanjung Lapa, the coast trends in a WSW direction, 12 miles to the village of Kalianget, which is on a point at the NE extremity of Teluk Sumenep.

From Tanjung Lapa to the village of **Langos** (7˚00'S., 114˚00'E.), the coast is rock fringed, then to Kalianget, the coast is low, sandy, and marshy. A shallow bay lies between Tanjung Lapa and Kalianget, bound on the S by Pulau Puteran.

The bay has depths of less than 5.5m extending 1.5 miles E of a line joining Tanjung Lapa and Tanjung Sarotak. The E extremity of Pulau Puteran is entered between these two points.

3.42 Gili Iyang (6˚59'S., 114˚11'E.) is a rocky island, 33m high near its SW end, with steep cliffs on its E side, and a clump of trees in the middle of its N part. The island is separated from Tanjung Lapa by Selat Gili Iyang, which is of little importance as there are shoal patches with depths of 7.3 to 11m in the fairway.

Pulau Puteran (7˚05'S., 114˚00'E.), separated from Madura by the narrow Selat Kalianget, is wooded and rather steep-to on its S side. The N side slopes downward toward the coast, which is low and marshy in places. A peak, 104m high, is located 2 miles E of the SW extremity. A peak, 130m high, is located 1.75 miles WNW of the SE end of the island.

From Kalianget, the coast trends SSW 6 miles to Tanjung Tanjung, a low, rocky point covered with a thick strand of trees. A conspicuous grove of trees, 104m high, stand on the E extremity of a range of hills, in a position 1.5 miles NW of Tanjung Tanjung.

Kalianget Road comprises Teluk Sumenep and the area S, enclosed by the N coast of Gili Genteng and lines drawn from the NW and NE extremities of that island to Tanjung Tanjung and Tanjung Padike, the SW extremity of Pulau Puteran, respectively.

Teluk Sumenep is entered between Tanjung Padike and Tanjung Tanjung. Tanjung Padike, 3m high, has a round tree on its rocky extremity that appears as an island when viewed from the E.

Teluk Sumenep is usually filled by a bank of soft mud. The depth just within the entrance point is 5.5m and gradually shoals to the head of the bay.

Kali Saroka (Sokrok) enters the bay 2.75 miles NW of Tanjung Tanjung. A bar which dries, fronts the river. Kali Marengan has its origin near the town of Sumenep and discharges into the NW corner of the bay; its entrance is closed by a mud bar. The coast between the two rivers is low and marshy, consisting mainly of salt pans.

3.43 Sumenep (7˚00'S., 113˚52'E.) (World Port Index No. 51140) stands on the banks of the Kali Marengan, about 4 miles inland.

The village of **Kalianget** (7˚35'S., 113˚57'E.) is situated on the N side of the narrows, which separates Pulau Puteran from Madura. There is a large salt factory and power house at the NW end of the village.

A concrete wharf, 80m long, lies W of the factory. Another concrete wharf, lying SE of the factory, is 100m long, with a depth of 10m alongside.

The Harbormaster's office stands close E of the concrete wharf; a mooring buoy lies mid-channel S of the same wharf.

Tidal currents in the narrows of Kalinget set NE and SW, attaining a rate of 4 knots at new and full moon.

A wreck lies in the channel N of Kalianget.

Pilotage is not available. Vessels should send their ETA to their agent 10 days, 3 days, 48 hours, and 24 hours prior to arrival.

There is anchorage and shelter in Kalianget Roads for vessels of light draft, with local knowledge. Range lights lead to the pier and anchorage off Kalianget.

From Tanjung Tanjung, the S coast of Madura trends in a WSW direction, 22.5 miles to **Tanjung Padelegan** (7˚15'S., 113˚32'E.).

On this segment of the coast, the shoreline recedes and forms a shallow bay; the land here is wooded and has a fertile appearance.

Many small villages stand along the shores of the bay and several small rivers intersect the coast. The only river of any importance is the Kali Bunder which flows 4.5 miles NE of Tanjung Padelegan.

3.44 Gunung Tambuku (7˚01'S., 113˚38'E.), 471m high, the highest peak on Madura, rises 17 miles WNW of Tanjung Tanjung. Gunung Rompeng, 433m high, stands at the W end of the ridge, 7 miles W of Gunung Tambuku, with Gunung Sekaran, 380m high, midway between Gunning Pajudan, 449m high, 0.75 mile W of Gunnung Tambuku, is the highest peak on the ridge and the island.

Except for these three peaks, a ridge to the S obscures most of the N ridge.

The 11m line fronts the N shore of the bay to a distance of 4 miles. A mudbank and shoal ground, defined by the 11m line, lies up to 9 miles E of Tanjung Padelegan. Depths of 3.6 to 5.5m are found in the entrance of the Kali Bunder, as far as the harbor office, situated about 1 mile up river. However, the channel through the drying bank of mud and sand, leading to the river entrance, has a depth of only 0.3m.

There are several islands and dangers fronting this stretch of coast.

Gili Genteng (7˚12'S., 113˚55'E.), 45m high, is 2.5 miles S of Tanjung Tanjung. The SE extremity of the island rises to a rocky point 25m high. It's connected to the main island by a

low, narrow, neck and from a distance appears as two islands. A light is displayed from a white metal framework tower, 8m high, on the edge of the reef, close off the W end of the island.

Gili Lawak (7˚12'S., 114˚03'E.), 21m high, lies 5 miles E of Gili Genteng. Two steep-to drying coral reefs lie 2 miles W of Gili Lawak and a steep-to coral reef with a depth of 2.4m, lies 2 miles farther W.

An isolated patch with a depth of 13.7m was reported to lie 6 miles SSW of Gili Lawak.

3.45 **Gili Raja** (7˚13'S., 113˚47'E.), fringed by a reef, lies 4 miles W of Gili Genteng; it is well wooded, and fertile. The island rises to a height of 54m near the middle of the S side and is marked by a light.

Gili Gilingan, a reef fringed islet, 10m high, lies 2.5 miles SW of the W extremity of Gili Raja. A reef, which dries 0.3m, lies 1.75 miles SSE of Gili Gilingan, and is plainly marked by discoloration. A reef fringed islet, 0.6m high, lies 1.5 miles WNW of Gili Gilingan.

Gili Dua (7˚15'S., 113˚40'E.), with Gili Pandan 1 mile NE, lies on a reef with above and below-water rocks. Both islets are about 0.6m high and covered by bushes.

Takat Wedi is a coral reef, with a small white cay, that lies 2.5 miles WNW of Gili Dua.

A reef similar to Takat Wedi, lies about 1 mile NW. Several dry rocks lie between this reef and the shore.

Bunder Road lies off the entrance to Kali Bunder. The road affords safe anchorage during the Northwest Monsoon. The recommended anchorage is in a depth of 7m, 4.75 miles NW of Gili Dua Light.

During the Southeast Monsoon, there is a considerable sea in the roadstead, making it unsafe for anchorage.

Vessels approaching the anchorage should pass between Gili Gilingan and the islet 1.5 miles WNW or between Gili Gilingan and Gila Raja.

Two prohibited areas, each with a radius of 2.5 miles, are centered about 2 miles SE of Gili Gilingan and 3.5 miles WNW of Gili Dua, respectively.

Two obstructions, 1.5 miles apart in an E and W direction, were reported to lie about 6.5 miles SSE of Tanjung Padelegan.

Tanjung Padelegan, which is low and marshy, is not easily identified. The coast to Tanjung Batu Putih, 22 miles W, is hilly.

Between Tanjung Padelegan and the village of **Tambakan** (7˚13'S., 113˚20'E.), 12 miles W, the coast is rock fringed from a position 3 miles W of Tanjung Padelegan. Camplong Light is shown near Tambakan.

A mosque stands on the coast, 2 miles E of Tambakan, and a another mosque is situated on the coast, 2.5 miles W of the village.

Between Tambakan and the entrance to Kali Sampang, the coast is rock fringed.

A hill, 85m high, rises 3.5 miles WNW of Tambakan and has some trees on its NW slope. A tree that makes a good mark stands on its SE slope.

Kali Sampang, 4 miles W of Tambakan, enters the sea near the E end of the narrow strip of sand. The town of Sampang, which is not visible from seaward, stands 1.5 miles above the entrance of the shallow river.

The only house visible from seaward is the harbormaster's office, a white building with a red roof, situated on the W bank of the entrance to the river.

Anchorage can be taken in 15 to 18m, mud, about 1.75 miles from shore, with the harbor office bearing 330˚ and a bare hillock E of the town bearing 023˚. During the Southeast Monsoon, vessels can anchor under the lee of Pulau Kambing, previously described in paragraph 3.35.

From the mouth of Kali Sampang, the coast of Madura trends W to the mouth of Kali Baliga, about 6 miles distance.

The coast is fronted by a low, narrow strip of sand and a steep-to sand spit, most of which dries, that extends 3 miles S from the entrance to Kali Baliga. There are brown patches outside the spit caused by the flow of the river.

Tanjung Batu Putih, the W entrance point to Kali Baliga, has been described with the E approach to Selat Surabaya in paragraph 3.36.

Kali Porong to Tanjung Sedano

3.46 The NE coast of Jawa, described here from W to E, forms the S side of Selat Madura. The SE entrance to Surabaya is approached through Selat Madura.

The ports of importance on this coast are, Pasuruan Road, Pelabuhan Probolinggo, Besuki Road, and Panarukan Road.

There are several peaks on Jawa which provide good landmarks and are also described in sequence from W to E.

From Kali Porong, the coast trends in a SE direction about 6 miles to Pasuruan Road. The coast is fronted by a chain of low, narrow, sandy islets. Inland, there are fish ponds, also separated by sandy islets; the paddy fields extend to the foothills of the mountains.

At the S end of the plain, extending S of Surabaya, is **Gunung Penanggungan** (7˚37'S., 112˚37'E.), 1,653m high, and conical shaped when viewed from the E. Gunung Ardjuno rises to a height of 3,339m, 9 miles SSW of Gunung Penanggungan; from the E, it appears as a broad ridge with three summits differing little in height.

Fronting the outer islets, there is a drying bank of mud and sand which extends 1 mile off Pasuruan. The 5.5m line lies up to 2 miles offshore.

3.47 **Pasuruan** (7˚37'S., 112˚55'E.) (World Port Index No. 51170) stands on the banks of the Kali Gembong, 27 miles SSE of Surabaya. A light, white mast 9m high, stands at the entrance on the E side at Keli Gembong.

Pasuruan Road provides shelter during the Northwest Monsoon, but is open to N and E winds.

During the Northwest Monsoon, communication with the shore is seldom interrupted, although it sometimes blows hard from the NW and SW. A shoal with a least depth of 3.7m, lies less than 1 mile N of the tide gauge hut.

Anchorage may be obtained in a depth of 9m, 2 miles NNE of the disused lighthouse on the W side of the mouth at Kali Gambong. Due to the proximity of Tanjungperak, the anchorage is only used by coasters conducting local trade.

From Pasuruan, the coast trends ESE, 7 miles to **Tanjung Warangan** (7˚39'S., 113˚01'E.), a low rounded point with tall trees that provide a good mark from the W; they are less clearly

defined from E. Fishponds front the coast, from Pasuruan 4.75 miles E and up to 1.75 miles from it.

Fronting the fishponds, there is drying sand and a mudbank which extends 0.75 mile seaward. It is advisable to keep in depths of not less than 22m when rounding Tanjung Warangan.

The coast trends 7 miles SE to Tanjung Taju, then 4 miles E to Probolinggo; there are several villages along this section of the coast. A white stone pyramid stands 2 miles SE of **Tanjung Taju** (7˚43'S., 113˚09'E.), and marks the SW boundary of Pelabuhan Probolinggo. A similar pyramid marks the SE boundary, 4.5 miles E.

The inland mountains provide good landmarks when approaching Probolinggo or when in transit of Selat Madura.

3.48 Gunung Tengger (7˚58'S., 112˚57'E.), one of the most remarkable volcanoes on Jawa, is located 18 miles SSW of Tanjung Warangan. The central crater is lower than the surrounding peaks which vary in height from 2,295 to 2,780m.

Between Tanjung Warangan and Probolinggo, the summit of Gunung Mahameru may be seen appearing above the slopes of Gunung Tengger.

Gunung Argowulan (7˚54'S., 112˚58'E.), 2,725m high, is the NE peak of Gunung Tengger and Pundak Lembu, 2,635m high, is the E peak of the same group. Gunung Pulsari, 1,450m high and Gunung Penawungan, 520m high, are located 8 miles ESE and 13 miles ENE, respectively, from Pundak Lembu.

Gunung Lamongan (7˚59'S., 113˚20'E.), which rises in two peaks to a height of 1,670m, is an active volcano with smoke constantly rising from it. This volcano is 16 miles SSE of Probolinggo.

Gunung Hiyang rises rapidly from the S to a prominent summit, **Gunung Argopura** (7˚58'S., 113˚34'E.). This peak is 3,088m high and slopes down gradually to the N, with several summits.

Gunung Loros (7˚44'S., 113˚35'E.) is a prominent cone, 539m high. It is visible great distances, from E,W, and N.

Near the coast, there are some conspicuous hills that form excellent landmarks when the mountain peaks are obscured.

Gunung Semongkrong (7˚41'S., 113˚01'E.), a ridge 84m high, is located close S of Tanjung Warangan. Gunung Tugel, a conical hill 85m high, is located 5.5 miles SE of Gunung Semongkrong.

Gunung Glugu, 5 miles SE of Probolinggo, is 104m high. There are trees on its top darker than the others. The lights of the sugar mills along the coast are visible at night.

Pulau Ketapang (7˚41'S., 113˚15'E.) is a low sparsely wooded island, 12m high, lying in the N approach to Probolinggo. A flagstaff stands on the E end of the island. Karang Katon, 2 miles SE of Pulau Ketapang, is a small patch of sand, shells, and stones, with a depth of 7.9m.

Karang Nangkok and Karang Munira, with depths of 11.9 and 11m, respectively, lie between Karang Katon and Pulau Ketapang.

3.49 Probolinggo (7˚45'S., 113˚13'E.) (World Port Index No. 51180) stands at the head of a small basin and is approached through a dredged channel, 610m long and 23m wide. There is quayage for small craft around the inner and outer basins and on both sides of the channel connecting the two basins. Ships are loaded and discharged in Probolinggo Roads, an open lighterage port.

Vessels up to 35,000 dwt can be handled at the anchorage.

Probolinggo Light, a white beacon 16m high, is situated NE of the town.

At the entrance to the canal leading to Probolinggo, a framework tower, 14m high, painted green, stands on the head of the W mole. A similar structure, painted red, stands on the head of the E mole.

Anchorage can be taken in 12m, mud, with the harbor entrance open and the light bearing 180˚, 0.5 mile. This anchorage is partly sheltered from NE winds by Pulau Ketapang. Anchorage may also be taken 1 mile NW of the light.

At the N end of Probolinggo is an oblong basin, with wharves for praus and lighters. A channel, with a depth of 3m, leads between the two stone breakwaters. Within the basin is a depth of 2.5m. Close to the head of the W breakwater is a wreck covered by 1.2m.

A torpedo firing range extends 3 miles S and 2 miles E from the E extremity of Pulau Ketapang. Fishing is prohibited in the area.

When practice is taking place, a black cylinder above the national flag will be displayed by the firing and recovery vessels. Similar signals are also displayed at the breakwater lighthouse and flagstaff on the E end of Pulau Ketapang. At night, a red light is shown at the lighthouse.

Pilotage is compulsory. Vessels should send their ETA to their agent 10 days, 3 days, 48 hours, and 24 hours prior to arrival.

Vessels approaching Probolinggo Road from W, steer for Gunung Glugu with the lighthouse bearing 141˚, or another hill about 10.5 miles SSE, with the lighthouse bearing 158˚. Both of these ranges lead W of Karang Katon.

When approaching from E, vessels may pass on either side of Pulau Ketapang, or between that island and Karang Katon, depending on draft. Gunung Glugu, in range with the hill 5 miles S, bearing 178˚, leads E of Pulau Ketapang.

3.50 Tanjung Gerinting (Grinting) (Bedulan) (7˚42'S., 113˚29'E.) is a low, sandy, steep-to point, 16 miles E of Probolinggo. The point is hard to identify. The intervening coast is low and covered with paddy fields.

The coast is fronted by a drying sand and mudbank which can be safely approached by sounding, except off Tanjung Gerinting.

At certain times of the year, the lights of the sugar factories, on or near the coast, may be visible from seaward.

Tanjung Kraksaan lies 11 miles E of Probolinggo. The point may be recognized by trees standing in the water at the mouth of the river. Tanjung Kraksaan extends N.

Kraksaan Road affords anchorage in a depth of 18m, N of Tanjung Kraksaan, bound by the parallel of Tanjung Gerinting and the meridians of 113˚23.5'E and 113˚26.5'E. Close to the coast forming its S boundary, there is a large warehouse with a zinc roof.

From Tanjung Gerinting, the low coast continues for 4.5 miles E where the slope from Gunung Loros reaches the coast. Here, there is only a narrow strip of sandy beach, fronted by a drying reef, which extends for 5.5 miles E to the village of Taman. Gunung Temporah, 99m high, rises close W of the village.

A measured distance marked by three pairs of beacons is established on the coast. The W pair of beacons stand 3.5 miles ESE of Tanjung Gerinting.

An ammunition dumping ground is situated about 4.5 miles NE of Tanjung Gerinting (Grinting).

Karang Kerandji (Pulau Kerandji) (7˚42'S., 113˚35'E.), a steep-to coral patch with a depth of 2.4m, lies 0.75 mile N of the E pair of the measured distance beacons.

3.51 Besuki (7˚44'S., 113˚41'E.) (World Port Index No. 51190) is the capital of the residency. Vessels calling here must anchor in Besuki Road which fronts the town between Gunung Temporah and Tanjung Ketah, and is bound on the N by the parallel of the latter point, and on the W by the meridian of Gunung Temporah, and the coast.

A light, shown from a metal framework structure, black and white bands, stands on the W bank of the Kali Besuki, N of Besuki.

A reddish banyan tree stands about 0.6 mile SSE of the light, and two warehouses with red roofs stand close S of the tree. A flagstaff stands 0.2 mile S and a sugar factory and chimney are 0.5 mile E, respectively, of the banyan tree.

Anchorage may be obtained in a depth of 18m, 0.5 mile NW of the light.

Vessels approaching Besuki Road from E should steer on Gunung Temporah, bearing 242˚, keeping in depths of 18.3m. Vessels from W, should pass well N of Karang Kerandji by keeping the N point of Gunung Temporah bearing not less than 114˚. The reef will be cleared when Gunung Loros bears 180˚.

Tanjung Ketah (7˚43'S., 113˚42'E.), the NE entrance point to Besuki Road, is low, flat, rounded, and marshy. Kali Deluwang flows into the sea here.

Between Tanjung Ketah and Tanjung Pasir Putih, about 6 miles E, the coast is flat and wooded with high coconut palms. The coastal bank extends 0.3 mile off Tanjung Pasir Putih.

The chimney of a sugar mill may be seen behind the palm trees. From Tanjung Pasir Putih to Tanjung Pecaron, 3.3 miles ENE, the coast is formed by the spurs of Gunung Ringgit; a narrow reef fringes this coast.

Tanjung Pecaron (7˚41'S., 113˚52'E.), the W entrance point of Panarukan Road, is formed by a conical hill 62m high, which appears as an islet when seen from a distance.

A tomb, surrounded by tall trees, stands on its summit.

3.52 Gunung Ringgit (7˚43'S., 113˚51'E.) is the W summit of a range, which rises 3 miles within the coast, and has several steep peaks. Its highest summit is 1,250m.

Gunung Beser, 1,303m high, rises 5.5 miles SSW of Gunung Ringgit, and is one of several prominent peaks that rise E of Gunung Argopuru.

Gunung Malang, 250m high, stands 2.3 miles ENE of Gunung Ringgit, and Gunung Kukusan, 509m high, with a village on its summit, rises 1 mile S of Gunung Malang.

A prominent peak, 600m high, stands 0.75 mile SSW of Kukusan.

Within the coast, SE and ESE of Gunung Ringgit, are some mountains identifiable in clear weather.

Gunung Raung (8˚07'S., 114˚03'E.), 26 miles SSE of Gunung Ringgit, is a volcano 3,332m high, with a large plateau on its summit. Gunung Merapi, at the E end of the range, is 2,800m high and conical. Spurs descend from this mountain range to Selat Bali.

Gunung Ringgih (7˚59'S., 114˚13'E.), 1,995m, is the highest summit of a mountain range N of Gunung Merapi.

The two mountain ranges, of which Gunung Merapi and Gunung Ringgih are a part, form an almost circular ring of peaks around a table, covering an area of approximately 25 square miles; this is known as Idjen Plateau.

Gunung Baluran (7˚50'S., 114˚22'E.), 1,247m high, rises near the NE extremity of Jawa. Baluran forms the SW side of a crater that is broken down on its NE side.

Close W of the crater are two peculiar reddish-brown knobs lying close together.

3.53 Panarukan (7˚42'S., 113˚56'E.) (World Port Index No. 51200) is situated on the low coast, 1 mile E of the head of the bight, between the two points that form Panarukan Road.

The town stands on the banks of Kali Sampean, and may be easily identified from sea by the many zinc-roofed warehouses.

A light, shown from a metal framework tower, 14m high, black and white bands, and a flagstaff E of it are difficult to identify. There is a short pier near the flagstaff and a longer pier 365m SW.

Foul ground lies 1.3 miles N of the light and **Karang Jamungang** (7˚41.3'S., 113˚55.5'E.), with a depth of 4.6m, lies 0.75 miles NNE of the light.

Two more shoals, with depths of 2.1m and 3.3m, lie about 0.6 mile N of the same lighthouse.

The mouth of Kali Sampean lies 0.75 mile NNE of the lighthouse, and a drying mudbank extends 0.75 mile N of the river. A beacon, 0.3 mile ENE of Karang Jamungan, marks the W limit of this mudbank.

Panarukan Road is bound by a line joining Tanjung Pecaron and Tanjung Paras on the N and the coast on the S. From April to December, working cargo with lighters at the anchorages can be carried out without difficulty.

During the Northwest Monsoon, especially during January and February, there is a short sea so that lighters cannot be fully loaded, and may have difficulty in berthing alongside.

Pilotage is not compulsory. Vessels should send their ETA 48 hours in advance.

Anchorage for moderate size vessels may be taken in a depth of 16m, 0.75 mile NW of the flagpole. Deep draft vessels should anchor farther seaward.

Vessels approaching Panarukan Road from E will clear the reef fringing Tanjung Paras, by keeping the main light bearing S of 195˚. It should be noted that the depths decrease sharply within the 20m line.

From Panarukan Road, the coast trends in a NE direction for 8.3 miles to Tanjung Pacenan, then SE about 30 miles to Tanjung Sedano.

Kalbut Sts Terminal consists of the storage tanker T.T. Kudos, which is 229,666 dwt and 319m long, in a depth of 40m and anchored in position 7˚34.4'S, 113˚54.5'E. Pilotage is compulsory and berthing is done in daylight only.

3.54 Tanjung Pacenan (7˚36'S., 114˚02'E.), 8 miles NE of Panarukan, is a rounded steep-to point formed by low, narrow, sandy islets. The islets and fish ponds extend 1 mile S. Tanjung Pacenan Light stands at a height of 43m on the point.

Kalbut Road is about midway between Tanjung Paras and Tanjung Pacenan, and is used by the sugar factories in the vicinity for the shipment of sugar.

From the W, the position of Kalbut can be identified by the numerous praus always lying in the road, and the tall palm trees lining the coast, NE of Tanjung Paras.

From N and NW, a sugar factory, with a chimney, lies about 3 miles SE of Kalbut, and may be seen over the low land.

From Tanjung Pacenan, the low sandy coast extends SE, 13 miles to Tanjung Jangkar, a low point covered with high trees.

The 18.3m line lies up to 1.5 miles offshore along this coast, but is charted only about 0.1 mile off Tanjung Jangkar.

Karang Putih (7˚41'S., 114˚10'E.), 2 miles offshore, 8.5 miles SE of Tanjung Pacenan, has a depth of 1.5m.

The town of **Jangkar** (7˚43'S., 114˚12'E.) lies at the head of a small bight, about 2 miles SW of Tanjung Jangkar. Sugar is exported from the road off Jangkar. There are two piers at the head of the bight; one is about 91m long.

A prominent warehouse with a zinc roof is situated in the town and a sugar factory with a chimney stands 3 miles S of Tanjung Jangkar.

Anchorage may be obtained in a depth of 15m, 1.3 miles N of the town. A 4.5m patch lies 1 mile NW of Jangkar; a 1.4m patch lies 1 mile further W.

Tanjung Cotek (Tanjung Tjotek) (7˚45'S., 114˚19'E.) lies 5 miles SE of Tanjung Jangkar. The coast between the two points is low and sandy, with marshy ground inland.

Tanjung Lumut lies 3.75 miles E of Tanjung Cotek. There is a small group of tall trees on Tanjung Lumut, and Gunung Baluran rises 5.5 miles S of the point.

Between Tanjung Cotek and Tanjung Lumut, a chain of islets lies parallel with the coast about 0.5 mile offshore.

Small local craft can obtain shelter within the narrow channel, which has depths of 7.3 to 12.8m.

3.55 **Tanjung Sumbertboto** (7˚47'S., 114˚26'E.) lies 4.75 miles SE of Tanjung Lumut. Close NW of Tanjung Sumberbatok, there are some above-water rocks.

A measured distance of 7,177m is established between Tanjung Lumut and Tanjung Sumberbatok and is marked by two pairs of beacons. The NW pair stand 0.75 mile SE of Tanjung Lumut and the SE pair 1 mile SE of Tanjung Sumberbatok. The running course is 124˚ and 304˚, at a distance of 2.75 miles from the coast.

Tanjung Sedano (7˚50'S., 114˚28'E.), the NE extremity of Jawa, is located 2.5 miles SE of Tanjung Sumberbatok. It may be identified by three steep-to precipitous rocky cliffs at the extremity of a spur from Gunung Baluran.

Pulau Karangmas (Gosong Karangmas) (7˚40'S., 114˚26'E.) lies 6 miles offshore, NE of Tanjung Lumut; it is the E of five reefs, partly dries, and has some bushes on it.

Discolored water extends 0.5 mile SW from the E reef, and two reefs with depths of 8.8 to 11m, lie within 1.5 miles SW. Reefs, with depths of 4.5m and 11m, lie 1 mile NW and 0.75 mile N, respectively, of Pulau Karangmas. A light shown from an eight-sided metal tower, 16m high, is situated on Pulau Karangmas.

Anchorage may be obtained in the basin between the reefs, 0.5 mile SW of the light, in a depth of 44m. This anchorage can be reached by steering a course of 072˚ with the light ahead. With good light, the edge of the reef can be avoided due to its discoloration.

Selat Madura

3.56 Selat Madura is the wide and deep strait between Madura on the N and the NE coast of Jawa on the S. Entry into the strait from the E is through the Bali Sea or from NE, through Selat Sapudi. Light draft vessels may proceed from the W end of Selat Madura to Tanjungperak, then N through Selat Surabaya.

The N and S coast of Selat Madura have been described beginning in paragraph 3.39; the approach to Selat Surabaya from the W extremity of Selat Madura has been described in paragraph 3.32.

Winds—Weather.—The monsoons in Selat Madura are relatively weak, the Southeast Monsoon being stronger. The high land on both sides of the strait create land and sea breezes which interfere with the steadiness of the monsoonal winds.

The Southeast Monsoon commences in April and blows from an ESE direction until September. It is stronger and steadier at night on the S side of the strait. The sea breeze opposes the Southeast Monsoon during the day to give light variable winds. On the N side of the strait contrary conditions will produce steady winds by day and weak and variable winds at night.

The Northwest Monsoon, from W of WNW, is impeded by the intervening mountains, but is more reliable in January and February. During these months, the wind is more constant near the Jawa coast in daytime and on the Madura side at night.

A cloudless, but very hazy sky, is the prevailing feature of the Southeast Monsoon, when rain seldom falls. The wet season lasts from December to March, though thunder squalls are infrequent.

Tides—Currents.—The horizontal movement of the water in Selat Madura is a mixture of monsoon currents and practically semidiurnal tidal currents.

In the vicinity of **Zwaantjes Reef** (7˚28'S., 113˚07'E.), the latter predominates and near **Gosong Karangmas** (7˚40'S., 114˚26'E.), the monsoon currents predominate.

Between these two positions the conditions are variable.

Vessels approaching the E entrance to Selat Surabaya will find that the monsoon current is no longer perceptible and that the tidal currents have increased considerably. In the vicinity of Zwaances Reef, the average rate of the tidal current is 1 knot, increasing to 1.5 knots at full and new moon and decreasing, toward the quarters, to about 0.5 knot.

The direction is E with the ebb and W with the flood. The current flows twice daily in each direction, at the change of the tide. The tidal currents under the Jawa and Madura shores are not as strong as in the middle of Selat Madura, the maximum rate being about 0.5 knot.

Caution.—Selat Madura is used extensively for naval exercises. For the limits of these areas and for mined areas refer to Pub. Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

Anchorage is prohibited in an area with a radius of 5 miles, centered about 12 miles E of **Zwaantjes Reef** (7˚28'S., 113˚07'E.). An explosives dumping area, lies near the center of the prohibited anchorage area.

Unexploded depth charges lie, both within and outside the limits, of the NE quadrant of the prohibited anchorage area. There is also an unexploded depth charge, charted 9.3 miles NW of Tanjung Pacenan. All other known dangers in Selat Madura have been discussed.

Selat Sapudi

3.57 Selat Sapudi is a wide and deep channel that lies between Gili Iyang and **Pulau Sapudi** (7˚08'S., 114˚20'E.), 7.5 miles SE. The strait is used by vessels as passage from Singapore to Australia, as well as those bound for Selat Madura and Selat Bali. The strait is prominent by radar.

Tembaga Reefs (7˚07'S., 114˚09'E.), a group of three reefs, lie on the W side of Selat Sapudi, 7.5 miles SSW of Gili Iyang. The NE reef of the group partially dries and has a stranded wreck on its N side. The S reef, with a depth of 0.6m, lies 0.75 miles SSW and the W reef, which dries, lies 1.3 miles SW of the NE reef.

There is a clear channel, with a depth of 11 to 16.5m, between Tembaga Reefs and Pulau Puteran, 3.75 miles to the W.

A coral rock, with a depth of 12m, is located 4.5 miles SSE of Gili Iyang; the rock is steep-to. An obstruction was reported to lie 4 miles ENE of this coral rock.

Tides—Currents.—The horizontal movement of water in Selat Sapudi is a mixture of monsoonal current and tidal stream.

There is no regular connection between the changes in the horizontal and vertical movements of the water, but generally, the flood tidal current appears to set S, and the ebb N.

During the Southeast Monsoon, the current sets N and in the Northwest Monsoon, S. When the current and tidal stream coincide and are running together, they attain a rate of 2 knots.

Caution.—Mined areas may exist in Selat Sapudi; for further information see Pub. 120, Sailing Directions (Planning Guide) for Southeast Asia.

Submarines exercise frequently in an area bound by the parallels 7˚14'S and 7˚24'S, and between the meridians 114˚20'E and 114˚40'E.

An explosives dumping ground is centered 7 miles SW of the SW extremity of Pulau Sapudi.

Kepulauan Sapudi

3.58 Kepulauan Sapudi, on the E side of Selat Sapudi, consists of thirteen principal islands. The largest of the group is Pulau Sapudi, with the others extending E 30 miles to Pulau Goagoa.

With the exception of Pulau Sapudi and Pulau Raas, 4.5 miles E, all the islands are low and flat. Some of the islands are inhabited and considerable trade is carried out by praus, principally at the beginning and the end of the Southeast Monsoon.

Pulau Sapudi (7˚08'S., 114˚20'E.) rises to a height of 120m in its SE part. The island lies 11 miles SE of Tanjung Lapa, the E extremity of Madura. There is a stone pier and flagstaff at **Gayam** (7˚10'S., 114˚20'E.), the principal village on the island.

The pier has a prominent red-roofed cupola on its head, and a light shown from a wooden mast, 12m high, stands nearby.

Tribung light is shown from a white, eight-sided framework tower, 59m high, 5.5 miles NNW of Gayam. The village of Tribung is situated about 1.3 miles SSE of the light. The island of Pulau Sapudi is reef fringed.

Anchorage may be taken in the Northwest Monsoon, in a depth of 35m, mud, 0.4 mile S of the pier at Gayam. During the Southeast Monsoon, the preferred anchorage is in depths of 29 to 33m, 0.5 mile W of Tribung light. These anchorages are unsuitable for a prolonged stay, and when the monsoon current and tidal currents coincide, eddies and whirlpools may cause a foul anchor.

Pulau Payangan (6˚58'S., 114˚26'E.) is the farthest N of this group. It lies on a steep-to reef, 7 miles NE of Pulau Sapudi. A patch, with a depth of 11m is located 2.5 miles NNW of Pulau Payangan.

Pulau Bulumanuk lies on a drying reef, 3.5 miles SE of Pulau Payangan. The reef, which is steep-to on its E and S sides, extends up to 1 mile offshore.

3.59 **Pulau Raas** (7˚09'S., 114˚33'E.) lies 4 miles E of Pulau Sapudi. The island rises to a height of 25m in the W and 49m in the E. The middle part is low and when viewed from a distance, it appears as two islands.

The island is fringed by a steep-to drying reef on its S and W sides. A reef, which dries, extends 4.5 miles N. Pulau Sarok, which is wooded and provides a good landmark, is located 1 mile within the N extremity of the drying reef. A detached reef, with a sand cay, lies 4 miles NE of the W extremity of Pulau Raas.

Koset (7˚04'S., 114˚29'E.), a reef with a least depth of 3.3m, is located 4.5 miles N of NW extremity of Pulau Raas. The reef is usually marked by discoloration.

Reiger, a reef with a depth of 7m, lies 4 miles ENE of Koset, and is not marked by discoloration.

Selat Raas is a deep and clear channel that lies between Pulau Sapudi and Pulau Raas. The strait is seldom used by large ships as the currents run at a greater rate than at Selat Sapudi.

Pulau Tonduk (7˚10'S., 114˚40'E.) has a hill, 30m high, with a flat summit. The island lies on a drying reef, which extends 2.75 miles NW from its N extremity.

Three low, reef-fringed islands lie between 5 miles N and 3.75 miles NNE of Pulau Tonduk. They are, from N to E, Pulau Telango Air, Pulau Telango Tengah, and Pulau Telango Timur.

Pulau Goagoa (7˚08'S., 114˚46'E.) lies on the SE extremity of an extensive reef which extends 3 miles NW. Pulau Kamudi, 1 mile NE of Pulau Goagoa, is surrounded by a white sandy beach. A light is situated on the E side of Pulau Kamudi.

The channel that extends NW between the reefs of Pulau Tonduk and Pulau Goagoa is deep and clear of dangers, except for a 14m patch, 1.75 miles SW of Pulau Goagoa.

Pulau Bawean and Off-lying Islands

3.60 Pulau Bawean lies 60 miles N of Ujung Pangkah, the W entrance point of Selat Surabaya. The mountainous, wooded island rises to a height of 656m, near its center; it is surrounded by dangerous reefs. Parts of the S and NW coasts of the island are low, but elsewhere the mountain ridges reach the coast.

Gosong Gia lies 45 miles NE of Pulau Bawean. Masalembo-kecil and Masalembo-besar lie about 100 miles ENE of the same island and are described in paragraph 3.64.

Tides—Currents.—In the vicinity of Pulau Bawean, generally, the flood current sets to the E and the ebb current sets to the W.

The horizontal movement of the water is almost entirely due to the monsoons. No greater rate than 2 knots has been observed.

Tanjung Mantegi (5˚43'S., 112˚41'E.), the N extremity of Pulau Bawean, is 98m high, partly cultivated, and marked by a light. Tanjung Gebang lies 2.8 miles ESE of Tanjung Mantegi.

The coast then trends 5.5 miles in a S direction to Tanjung Klumpang.

Reefs extend 9.5 miles from the E coast of Pulau Bawean, rendering the approach on this side dangerous.

The shoals show little discoloration, and although the water is quite clear, they are first seen only when the ship is right over them. The reefs that uncover do not show much discoloration when submerged.

Karang Gosong (5˚46'S., 112˚51'E.) lies about 5.5 miles off the E coast of Pulau Bawean. The reef is always covered, but has numerous heads just below the surface.

The remains of a stranded wreck may be visible on the NE side of the reef. A 2.4m sandy patch lies 2 miles N of Karang Gosong, and is the NE danger off the E side of Pulau Bawean.

3.61 Gili (5˚48'S., 112˚46'E.), surrounded by reefs and separated from the E coast of Pulau Bawean by a foul channel 1.75 miles wide, is a thickly wooded islet that rises to a height of 105m.

Karang Bitian (Bitian) (5˚52'S., 112˚52'E.), the E of the known dangers off this coast, is a narrow, elongated reef, with a least depth of 5.8m. Karang Bungarang, an above-water rock, lies on an extensive reef, 5.5 miles W of Karang Bitian.

Pulau Noko (5˚53'S., 112˚42'E.), a low brush-covered islet, lies off the SE coast of Pulau Bawean, 5 miles WSW of Karang Bungarang and is fringed by a reef extending about 0.4 mile offshore. An 11m patch lies 3 miles SSE of Pulau Noko and an 8.5m patch lies 3.8 miles ESE of the same islet.

There are numerous shoals lying off the E coast of Pulau Bawean, which may best be seen on the chart.

Tanjung Layar (5˚52'S., 112˚41'E.), 3.8 miles SW of Tanjung Klumpang, is the extremity of a peninsula 183m high, connected to the island by a low isthmus. Tanjung Layar is barren and from a distance appears as an islet.

Tanjung Alangalang (5˚52'S., 112˚37'E.), 4 miles W of Tanjung Layar, is the extremity of another peninsula, 70m high, which appears as an islet when seen from seaward. There are some large above-water rocks on the coastal reef, which extends 0.3 mile from the point.

3.62 Sangkapura Road (5˚52'S., 112˚37'E.) (World Port Index No. 51110), is bound by the parallel of Tanjung Alangalang on the S and the coast on the N, and between the meridians of Tanjung Alangalang and Tanjung Layar.

A stone pier, about 0.2 mile long, projects SSW from the head of Sangkapura Road, close SW of the village of Sangkapura. A light is shown from a flagstaff close to the root of the pier. A breakwater, about 0.2 mile long, is built across the reef S of the pier.

Numerous reefs and dangers lie in the road. Timbul Reef, with a least depth of 1.8m, lies on the W side of the entrance range. Other charted dangers lie on both the E and W sides of the range.

Tanjung Alangalang and Tanjung Layar are useful landmarks as is Gunung Maloko, 0.75 mile NNE of the root of the pier.

A range, with lighted beacons in line bearing 000˚, leads between the dangers. The front beacon stands on the beach 1 mile WNW of the pier and the rear beacon is on a hill, 1 mile N.

Anchorage may be obtained by large vessels in depths of 22 to 26m, 0.6 mile S of the pier. Small vessels may anchor on the range line, 0.75 mile W of the pier head.

Continuous SE and SW winds raise a heavy swell in the roadstead. A swell also sets in with winds between W and NW.

Camar Marine Terminal (6˚18'S., 113˚00'E.), stands about 33 miles SE of Pulau Bawean in the Camar Oil Field; a restricted area surrounds the field. Two lighted oil production platforms stand in the E edge and NE parts of the restricted area.

Caution.—Best seen on chart**,** an obstruction lies 1.5 miles S of the E platform. A dangerous unmarked wreck lies 14 miles S of the NE platform.

3.63 Tanjung Gaang (5˚51'S., 112˚34'E.), the SW extremity of Pulau Bawean, 3.3 miles NW of Tanjung Alangalang, is a low, bare, rocky tongue of land. Inland of the point the land rises to a hill, 212m high.

Tanjung Gili (5˚48'S., 112˚34'E.), the W extremity of the island, lies 2.3 miles N of Tanjung Gaang. The densely wooded point, 47m high, is easy to identify.

Teluk Bangsal is entered between Tanjung Gili and a low point, 1 mile NNE.

Anchorage, by vessels with local knowledge, is available in the bay during the Southeast Monsoon.

Tanjung Cina (Tjina) (5˚47'S., 112˚35'E.), 2.5 miles N of Tanjung Gili, is a wooded peninsula, 116m high, connected to the main island by a very low, sandy isthmus.

From Tanjung Cina, the coast trends in a NE direction about 7 miles to Tanjung Mantegi, a point previously described in paragraph 3.60. Promahan Bay lies on the W side of Tanjung Mantegi.

Anchorage, with local knowledge, may be obtained in Promahan Bay, in depths of 15 to 20m. Care must be taken to avoid a reef, with a depth of 4.5m, which extends 0.75 mile NE from the W entrance point of the bay.

Caution.—A 4.5m patch lies 4.75 miles WSW of Tanjung Alangalang. This patch is the farthest SW danger charted off the W coast of Pulau Bawean.

A below water rock lies 0.75 mile SW of Tanjung Gili and a 12m patch lies 2 miles farther SW. A reef, with a below-water rock off its outer end, extends 1.3 miles NW from Tanjung Gili.

A below-water rock lies in the middle of the entrance to Teluk Bangsal.

An oil rig lies as a dangerous wreck about 31 miles SE of Pulau Bawean. The wreck is marked by lighted buoys.

Another dangerous wreck unmarked, lies 14 miles further S.

3.64 Nusa (Noesa) (5˚45'S., 112˚32'E.), a high, bare rock, is 2.5 miles WNW of Tanjung Cina. A reef, with a depth of 0.9m, lies 1.3 miles SSW of Nusa. A 4.9m patch lies about 1.75 miles WNW of Nusa, and a below-water rock lies 1 mile N of the same reference point.

The entire area should be avoided, although most of the shoals can be seen in clear weather from a relatively short distance.

Pulau Bila (Bila) (5˚45'S., 112˚36'E.), a wooded islet, 48m high, lies near the end of a coastal reef in a position 2.3 miles NNE of Tanjung Cina.

Masalembo-Besar (5˚33'S., 114˚26'E.), about 100 miles ENE of Pulau Bawean, is a small thickly wooded island, 197m high, surrounded by reefs. The reef, when covered, is usually well marked by discoloration. The island was reported to be radar conspicuous at a distance of 29 miles.

There is a small port on the N side of the island with a T-head jetty, 472m long. There is a buoyed approach channel through the reef that leads to the pier.

A light, shown from a metal framework tower, red and white stripes, stands on the summit of the island. A dangerous wreck lies about 6 miles WNW of the light. An ammunition dumping ground exists 10 miles WNW of the light.

Masalembo-kecil (5˚26'S., 114˚26'E.), 4.3 miles N of Masalembo-Besar, is 79m high and fringed by a drying reef. The reef, when covered, is usually well marked by discoloration. The reef on the NW side of the island does not cover. An unused aluminum light stands on the S extremity of the island.

A detached 4.6m patch lies 0.75 mile outside the fringing reef off the SE side of the island, and is not marked by discoloration.

Discolored water was reported, 31 miles W of Masalembo-kecil. Discolored water was reported in 1981, 10 miles WSW of Masalembo-kecil.

Gosong Gia (Annie Florence Reef) (5˚12'S., 113˚17'E.), 47 miles NE of Pulau Bawean, is small in extent, and dries at low water. When covered the reef shows little discoloration, but sometimes breaks heavily.

A patch of 14.6m, gravel and sand, lies about 9 miles ENE of this reef. In clear weather, Pulau Bawean can be seen from the vicinity of the reef. A wreck lies 16.5 miles SE of Gosong Gia.

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